



June 24, 2010

VIA ELECTRONIC COMMENT FILING SYSTEM (ECFS)

Ms. Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

**Re: Ex Parte Communication, 47 C.F.R. § 1.1206
GN Docket Nos. 09-47, 09-51, 09-137; WC Docket No. 07-245; WC Docket
No. 09-153**

Dear Ms. Dortch:

On June 23, 2010, Joanne Hovis, the President-Elect of NATOA, Lori Sherwood, a member of NATOA's Board of Directors, Nick Miller, Joe Van Eaton, and Gerry Lederer of Miller & Van Eaton PLLC, on behalf of NATOA and the City of St. Louis, Missouri, and I met with the following members of the Wireline Competition Bureau:

- Sharon Gillett,
- William Dever,
- Marvin Sacks,
- Albert Lewis,
- Ian Dillner,
- Wesley Platt,
- Jeremy Miller,
- Cathy Seidel, and
- Jenny Prime.

The purpose of the meeting was to discuss the essential role local governments play in the deployment of broadband services. Specifically, the meeting discussed two issues which are of immediate concern to local governments:

- (1) Obtaining access to utility owned poles under Section 224 and
 - (2) Concerns that the Intergovernmental Rights of Way Task Force will be prejudged by Commission action on the pending *Level 3* proceeding. We also pointed out how, in any event, the *Level 3* petition is a poor vehicle for Commission action on Rights of Way.
- The discussion followed the attached documents.

Pursuant to Commission rules, please include a copy of this notice in the record for the proceedings noted above.



Sincerely,
/s/ Matthew R. Johnson
Matthew R. Johnson
Legal Fellow
NATOA

Cc with attachments:

Sharon Gillett, Bureau Chief, Wireline Competition Bureau
Marvin Sacks, Wireline Competition Bureau
Albert Lewis, Wireline Competition Bureau
Wesley Platt, Wireline Competition Bureau
Cathy Seidel, Wireline Competition Bureau
Jenny Prime, Wireline Competition Bureau
Ian Dillner, Wireline Competition Bureau
William Dever, Wireline Competition Bureau
Jeremy Miller, Wireline Competition Bureau

Middle Mile Public Networks Should be Protected Under Section 224

- Middle Mile Public networks owned and operated by state and local governments provide vital telecommunications services to community anchors and other public facilities, but are being told they are not protected entities under Section 224.
 - Provide variety of Services
 - Types of end-user customers
 - Open-access networks
 - Serving the unserved and underserved
 - Economic development and public and private partnerships
- Problem facing these middle mile public networks is nondiscriminatory access to poles pursuant to Section 224.
 - Section 224 access
 - Case Studies
- FCC should clarify that Middle Mile public networks are protected under Section 224. Failure to do so will result in:
 - Disproportionate impact on the public need
 - Build-out delays and other problems

The FCC Should Not Decide this Matter on the Grounds Proposed by Level 3

- Granting the Petition would constitute an unprecedented and unnecessary meddling by the FCC in matters of contract.
 - The FCC has never ruled that a party may contractually obtain a valuable right to access state property, and then later—indeed, *nearly ten years later*—claim that the contract remains binding *except* for the government’s chief consideration, the fee.
 - Even if preemption were appropriate (which, as the record shows, it is not), it is unquestionably for a court, not the FCC, to decide the questions about severability and the absence of consideration that are necessarily ancillary to such a finding.
 - Through its predecessor-in-interest, Level 3 pledged as a matter of contract that it would not bring *precisely* this claim.¹
 - Such contract matters must be tested by a court, a point the FCC has long recognized.²
- The proceeding turns on historical arrangements and key questions of fact which may be better developed through more formal procedures, and which the *ex parte* procedures adopted by the Commission are not well-designed to address. Given the potential significance of this case (discussed below), leaving the matter to the courts is consistent with the fact-based nature of the case, as well as Commission precedent.
- Adopting Level 3’s proposed sweeping changes to the Commission’s standards under Section 253 necessarily requires further public comment, and in order to decide the case, the Commission would have to adopt procedures that would disrupt and are inconsistent with the National Broadband Plan (“NBP”).
 - The NBP creates a Task Force that must recommend “appropriate guidelines for what constitutes ‘competitively neutral,’ ‘nondiscriminatory’ and ‘fair and reasonable’ rights-of-way practices and fees” and “a process for the FCC to

¹ See, e.g., Petition Exh. 16, Regeneration Rider for Site No. 4, at ¶ 10 (“Permittee hereby settles and releases and agrees to hold harmless the Authority from any and all claims it may have with respect to this Permit Agreement or any other agreement . . . concerning an additional fiber access connection at this location.”).

² *In re Application of Network Properties of Am., Ltd. (Assignor) & Fort Myers Broad. Co., Inc.*, 10 FCC Rcd. 12413 ¶ 27 (1995) (“The alleged breach is a private contractual matter, and the Commission has repeatedly affirmed that it is not the proper forum for the resolution of such matters.”).

use to resolve disputes under Section 253.” It is not consistent with the process envisioned to have established Section 253 standards based on the facts of the Level 3 case, or through the Level 3 proceeding.

- Level 3 only called for changes to the FCC’s standards under Section 253 *after the close* of the comment period (not in its Petition).³ It now calls for changes that fundamentally change the test under section 253(a); and that change the role of the Commission in Section 253 disputes. These changes could have far-reaching effects, eliminating millions, and possibly billions in public revenues. None of these changes could have been anticipated based on the public notice in this matter. If the Commission seeks to act on Level 3’s call to revise its tests, it must re-open the matter for public comment.
- But that process would be inherently in tension with the NBP process. The better course especially as Level 3 is seeking application of Section 253 to a long-standing contract, is to allow the courts to decide the Level 3 case based on existing standards, while initiating any additional proceedings with respect to right-of-way only after and in light of the results of the Task Force process.
- There is little need for the Commission to intervene now. Section 253 case law is not in need of clarification:
 - Now that *Auburn* has been clearly overruled, the circuit courts are united in relying on the plain language and the FCC’s *California Payphone* standard.
 - Contrary to Level 3’s claim, the Solicitor General’s *amicus* brief does not call for the FCC to intervene at this time. Instead, the brief calls for intervention only if a “significant divergence in outcomes” should arise:
 - “Any disagreement among the circuits chiefly involves the application of [the *Cal. Payphone*] test to various types of state and local regulations. *If such disagreements cause significant divergence in outcomes among the circuits*, the Commission can restore uniformity by issuing authoritative rulings on the application of Section 253(a) to particular types of state and local requirements.”⁴
 - Since the Solicitor General filed its brief, no circuit court has published a controlling Section 253 decision.
 - Level 3’s call for clarification to the judicial standards in this case is odd, since Level 3 has favorably described the controlling Second Circuit decision,

³See Level 3 Ex Parte Submission, WC Docket No. 09-153 (May 25, 2010).

⁴ Brief for the United States as Amicus Curiae, Case Nos. 08-626 and 08-759 (U.S. May 2009) at 18 (emphasis added).

TCG N.Y., Inc. v. City of White Plains, 305 F.3d 67 (2d Cir. 2002), as “afford[ing] Section 253(a) a more functional scope.”⁵

- The novel, hypothetical standards proposed by Level 3⁶ have not been adopted by *any* circuit court.
- The FCC is not required by law to intervene.

If the FCC were to reach the merits:

- The FCC must recognize that the plain language of Section 253 places severe limits on the agency’s power to clarify the statute.
 - Level 3 correctly notes that Section 253 is concerned with “practical effects.” But the statute only targets one such practical “effect” — the “effect of *prohibiting*” the ability to provide service.
 - Section 253 cannot be “clarified” to preempt requirements that have the “effect of *impairing*,” the “effect of *impeding*,” or the “effect of *limiting*,” if, at the same time, the ability to compete in the market is not seriously jeopardized.
 - Focusing on whether a requirement is costly or burdensome is far removed from whether it has the “effect of prohibiting.”⁷
 - Focusing on hypothetical harms that might follow if jurisdictions were to adopt the same requirement is also far removed from the “effect of prohibiting.”⁸
 - Section 253 is not a rate regulation provision.
 - If Congress had meant to affirmatively regulate the rates a local government can charge, it knew how to do so. Compare 47 U.S.C. § 224 (b)(1). Under Section 253, any price or methodology is permissible so long as it does not have the outlawed “effect.”

⁵ Level 3 Communications, LLC, Petition for Certiorari, No. 08-626, at 24 (Nov. 7, 2008).

⁶ Level 3 Ex Parte Submission, WC Docket No. 09-153 (Mar. 9, 2010).

⁷ Compare *AT&T v. Iowa Utilities Board*, 525 U.S. 366, 389-390 (1999) (reversing FCC decision because the word “impair” under the Act requires more than a showing of an increase in costs).

⁸ Level 3 Ex Parte Submission, WC Docket No. 09-153, at 3 (Mar. 9, 2010).

- Section 253's only reference to "compensation" arises in its safe harbor, which cannot be the basis for preemption.
- Congress was clear that the FCC cannot resolve disputes under Section 253(c).

There is no preemption, even if my second-degree amendment is adopted, Mr. President, for subsection (c) which is entitled, "Local Government Authority," and which is the subsection which preserves to local governments control over their public rights of way. It accepts the proposition from those two Senators that these local powers should be retained locally, that any challenge to them take place in the Federal district court in that locality and that the Federal Communications Commission not be able to preempt such actions.⁹

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⁹ 141 Cong. Rec. S 8213 (daily ed. June 13, 1995) (statement of Sen. Gorton).

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June 23, 2010

Ex parte submission

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Level 3 Communications, LLC, Petition for Declaratory Ruling That Right-of-Way Rents Imposed by the New York State Thruway Authority Are Preempted Under Section 253, WC Docket No. 09-153*

Dear Ms. Dortch:

The City of St. Louis, Missouri (the “City”),¹ in response to the *ex parte* filings in this docket by Level 3 Communications, LLC (“Level 3”),² submits this letter to address the procedural posture of this matter. Long after its initial filing in this case, and after the formal pleading cycle had closed, Level 3 embarked on a series of *ex parte* meetings that fundamentally altered the claims it was making in this case. In those filings, Level 3 asked the Commission to revisit its Section 253(a) rulings; to adopt and apply new rules that will fix the amounts state and local governments may charge for use of rights-of-way; and to apply those rulings retroactively in this case to invalidate the terms and conditions of a contract agreed to almost a decade ago. The Commission should not embark on that dangerous path. Instead of deciding the matter on the grounds proposed by Level 3, the FCC should, consistent with prior precedent, leave the matter to the courts.

¹ The City previously filed reply comments on November 5, 2009.

² Level 3 Ex Parte Submission, WC Docket No. 09-153 (Mar. 9, 2010); Level 3 Ex Parte Submission, WC Docket No. 09-153 (May 25, 2010); Level 3 Ex Parte Submission, WC Docket No. 09-153, at 2 (June 4, 2010) (“Ex Partes”).

An action is presently pending between Level 3 and the New York State Thruway Authority (“NYSTA”) in the United States District Court for the Northern District of New York.³ Allowing the court to decide the case without FCC interference is the proper course for a number of reasons:

First, granting Level 3 the relief it requests would constitute an unprecedented and unnecessary meddling by the FCC in matters of contract. The FCC has never ruled that a party may contract for a valuable right to access state property, and then later—indeed, *nearly ten years later*—claim that the agreement remains binding *except* for the government’s chief consideration, the fee. Even if preemption were appropriate (the record does not support preemption), it is unquestionably for a court, not the FCC, to decide issues of severability and the absence of consideration that are necessarily ancillary to the elimination of a contract’s compensation provision.⁴ This would be true even if Level 3, through its predecessor-in-interest, had not contractually pledged not to bring *precisely* this claim.⁵ Such contract matters are properly tested by a court, as the FCC has long recognized.⁶

Second, precisely because this case involves a contract, it is a poor candidate for the FCC to adopt changes, much less retroactive changes, in controlling law. The Commission’s vision

³ Case No. 1:10-cv-00154-LEK-RFT.

⁴ Level 3 may argue that it has proffered consideration, because it has offered to pay the fee that is associated with different utilizations of the Thruway. But this only highlights the contractual problem. If the FCC rules that the proffer by Level 3 is now the consideration for the contract, the FCC would not be *preempting* (which is the *only* remedy available to it under Section 253(d), assuming it has jurisdiction over this case); it would be dictating a substitute price term and requiring NYSTA to maintain all other terms as is - effectively forcing NYSTA to affirmatively contract for property at below-fair market value. And ultimately, Level 3’s requested fee would advantage it over other providers. Level 3 is not seeking the same contract that has been offered to others; it is asking for different, far more valuable rights, at different locations. Level 3 has never explained how that result could possibly advance fair competition.

⁵ See, e.g., Petition Exh. 16, Regeneration Rider for Site No. 4, at ¶ 10 (“Permittee hereby settles and releases and agrees to hold harmless the Authority from any and all claims it may have with respect to this Permit Agreement or any other agreement . . . concerning an additional fiber access connection at this location.”).

⁶ *In re Application of Network Properties of Am., Ltd. (Assignor) & Fort Myers Broad. Co., Inc.*, 10 FCC Rcd. 12413 ¶ 27 (1995) (“The alleged breach is a private contractual matter, and the Commission has repeatedly affirmed that it is not the proper forum for the resolution of such matters.”).

for broadband deployment depends on the work of contracting parties;⁷ and such contracting parties in turn depend on certainty in the law. Yet there can be no certainty if a federal agency is willing to change key contractual terms after the fact — particularly many years after the complainant has obtained substantial benefits from the contract. If the Commission were to hold that any contract with a state or local government can be challenged up to a decade later; and that the agency will hear those claims, the FCC could distort incentives for both communications companies and local governments in significant ways. First, every company that has a contract to use publicly owned property (light poles, conduits, easements, airports, public transportation terminals and the like) will have an incentive to file a claim at the Commission. There could be thousands of such claims. Second, going forward, the Commission will have created an enormous disincentive for localities to open up facilities to communications uses: why enter into a contract that allows someone to use a light pole if the contract terms are uncertain, and the liabilities of the local government indefinite? *See infra*.

Equity – and the Supreme Court – have long recognized that a party that has obtained substantial benefits from a contract may not then escape the burdens to which it agreed. Under general principles, a complainant:

having entered into a contract, and having acted under it, “is estopped from denying the validity of the contract. . . . A party cannot avoid the legal consequences of his acts by protesting, at the time he does them, that he does not intend to subject himself to such consequences.”⁸

If there is a claim to be brought under Section 253, that claim should be based on the existing judicial and Commission standards for Section 253; and consistent with the nature of the dispute, the FCC should leave this historical, contractual dispute to the court.⁹

Third, this case turns on critical questions of fact that are better tested by a court (or, at the very least, in a contested hearing before the agency). For example, one critical assertion underlying Level 3’s claims is that it is effectively a captive customer of the NYSTA, and is

⁷ *See, e.g.*, Connecting America: The National Broadband Plan, Chapter 16 n.1.

⁸ *U. S. ex rel. Int’l Contracting Co. v. Lamont*, 155 U.S. 303, 308-310, 15 S. Ct. 97, 99, 39 L. Ed. 160 (1894) (internal citation omitted).

⁹ *Lamont* suggests another reason why this case must be left to the courts. Level 3 is not asking the FCC to preempt the contract under which it is operating; it is asking the FCC to preempt certain contractual terms, and to mandate that the NYSTA comply with the remainder of the contract. But as *Lamont* suggests, that remedy is only available if the FCC has authority to compel the NYSTA to enter into the contracts; it has no such authority. Because the relief sought is ultimately not available in this forum, the matter is properly left to the courts.

forced to agree to unreasonable price terms. But the basis for this claim is actually unproven. What was clear is that Level 3 *never* was forced to enter into a contract for additional access points with the NYSTA. There are rights-of-way that run east to west in New York State that, as far as the record shows, it could have accessed by using the access and entrance points to which NYSTA agreed when it entered into its initial contracts with NYSTA. At most, the current record suggests that if Level 3 is provided the additional access points for which it contracts, at a price lower than the price for which it contracted, it will be better off. But that is not enough of a showing to support a claim of impairment, much less a showing of prohibition. *AT&T v. Iowa Utilities Board*, 525 U.S. 366, 389-390 (1999). As the FCC is aware, Level 3 bears the burden under Section 253(a), and yet it has made no showing at all on this, or on many other critical questions. Only by allowing the parties to conduct discovery can this question be answered. Fact finding through the *ex parte* process only promotes the industry's disclosure of favorable facts, and is materially prejudicial to parties that cannot afford Washington counsel.¹⁰

Fourth, this matter presents serious procedural questions because of the manner in which Level 3 has presented its case. Unlike in its Petition, Level 3 now does not merely ask the FCC to apply established Section 253 principles to the facts. Instead, through the *ex parte* process, Level 3 has asked the FCC to “clarify” and “refine” Section 253(c), and to interpret Section 253(c) to establish a new test for whether right-of-way compensation is reasonable. The exact parameters of Level 3's position is changing: the company's most recent *ex parte*¹¹ could be read

¹⁰ This sort of fact-finding-through *ex-parte* presentations – even assuming it is a valid procedural technique - is inherently less transparent and fair. Rather than a structured give and take, Level 3 and companies with significant resources can simply make repeated trips to the Commission, altering legal and factual positions at will, and forcing opponents to either expend scarce resources or forgo response. It is more likely, therefore, to lead to mistaken conclusions, with unintended and significant consequences. Level 3 is one of several communications companies that use the NYSTA's facilities. If the Commission revisits Section 253, and alters and applies it retroactively to Level 3's contract, that decision will affect not only Level 3, but also other providers and the basic functioning of the NYSTA conduit system. The New York State pricing approach has the advantage of reflecting an agreed and marketplace value for access points; it discourages excessive entry into the Thruway system by making it cheaper to leave that system at the initially agreed-upon points. If the Commission changes a pricing formula that has been in place for years, that decision will necessarily encourage providers to enter and exit the Thruway at the points most convenient to their business plan. Unless it is prepared to state that the Thruway must grant every potential provider entrance and exit at the points of its choosing (a result that would place the Commission and the Federal Highway Administration at odds), the Commission must also decide where the exit and entry points should be located to avoid advantaging one provider over another. That is: in attempting to resolve factual issues *ex parte*, the Commission risks missing the trees and the forest.

¹¹ Level 3 Ex Parte Submission, WC Docket No. 09-153, at 2 (June 4, 2010).

to be urging the Commission to rule that any local or state requirement that falls outside the bounds of the “safe harbors” of Section 253(b) and (c) is by definition prohibitory. Far from being a “clarification” of the FCC’s existing rulings, this is a call for their reversal. The FCC has consistently recognized that the test for prohibition under Section 253(a) and the “safe harbors” *cannot* be conflated. Every court of appeals that has considered the issue has likewise rejected the argument that regulations falling outside the scope of Section 253(b) and (c) are by definition prohibitory. Moreover, Level 3 is asking the Commission to adopt new tests that could have significant financial consequences for already-strapped local and state governments, undercutting their own efforts to encourage broadband deployment and competition. The “test” that Level 3 asks the Commission to adopt for Section 253(c), for example, would invalidate all the fees being charged in the state of Texas – fees that were adopted by the legislature with the support of the telecommunications industry.

It is not appropriate for the Commission to change course in the middle of a proceeding – particularly where the course change could have such a significant impact – without establishing a procedure that at least makes clear what is at issue and what changes are being considered. The public notice here—which was based on Level 3’s Petition—did not indicate the FCC was considering major changes to its standards under Section 253 for a simple reason: Level 3’s Petition did not call for such changes.¹² Level 3 only made that call in an *ex parte* filing made *four months after the close* of public comment. As such, the record compiled is very limited and lacking in the comprehensive study of right-of-way policy issues that would be necessary to enact Level 3’s proposed changes. At the very least, the FCC must re-open the matter for public comment; but as suggested above, the necessarily retrospective nature of this case suggests that the Commission should recognize that this case is not an appropriate vehicle through which to consider major changes in Section 253 law at all.

Fifth, using this case to reevaluate Section 253 will necessarily undercut the procedures contemplated in the National Broadband Plan. Recommendation 6.6 of the Plan calls on the FCC to convene a joint task force of state, local, and tribal authorities with a mandate to, among other things, recommend “appropriate guidelines for what constitutes ‘competitively neutral,’ ‘nondiscriminatory’ and ‘fair and reasonable’ rights-of-way practices and fees” and “a process for the FCC to use to resolve disputes under Section 253.” The task force will have six months to make its recommendations to the FCC. As of this writing, the task force has not yet convened.

The task force will likely explore a range of approaches to right-of-way management and compensation. It will also likely consider the conclusion of respected economists that allowing state and local governments to charge a fair market value for their property *advances* the goals of the Communications Act. As one economist has explained:

¹² Public Notice, DA 09-1878, WC Docket No. 09-153 (Aug. 25, 2009).

Allocating the ROW by first-come, first-serve or on some other non-market basis makes no economic sense, especially given the external costs imposed on third parties if a ROW is over-consumed by any individual enterprise. The same result follows if one artificially limits a community to charging fees at less than fair market value. This is easily prevented by charging a ROW fee that reflects the ROW as a valuable asset or resource for which there are important and competing uses. Free and unrestricted-or underpriced-access to a City's ROW would increase the demands on the ROW and place substantial economic burdens on the City through additional inspection, maintenance and construction costs. Free or underpriced access would also increase the costs to other ROW users through unnecessary make-ready expenses, unnecessary design and modification expenses, and unnecessary repairs and disruptions caused by overuse of the resource. Charging a fee helps ensure that the ROW will be used efficiently, that is, that the ROW will not be misused or wasted. Furthermore, the closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.¹³

Using the *Level 3* petition as a vehicle to decide these issues – even if the decision is not issued immediately – necessarily undermines the task force and the integrity of a process designed to allow the FCC, states, and localities to take a fresh look at right-of-way issues. The FCC should not undermine the Task Force by adopting sweeping rules that make “no economic sense” at the behest of the industry, before the task force has even had the chance to consider these issues and to make its recommendations to the Commission. The best course, consistent with the NBP, is to allow the New York courts to move forward with this case, and to take up broader issues – if any FCC action is even required – through an appropriate proceeding after the Task Force completes its business.

Sixth, Congress was very clear that the FCC has no authority to decide issues under Section 253(c), the preservation clause for local right-of-way management and compensation. Senator Gorton's amendment, which deliberately removed the mention of subsection (c) from subsection (d), made unmistakably clear that the FCC is not authorized to rule on Section 253(c) issues:

There is no preemption, even if my second-degree amendment is adopted, Mr. President, for subsection (c) which is entitled, “Local Government Authority,” and which is the subsection which preserves to local governments control over their public rights of way. It accepts the

¹³ W. Ed Whitelaw, *Economic Principles of Charging Fees to Access Government Trust Properties*, at 6, attached hereto at Attachment A.

proposition from those two Senators that these local powers should be retained locally, that any challenge to them take place in the Federal district court in that locality and that the Federal Communications Commission not be able to preempt such actions.¹⁴

Because Level 3's Petition necessarily raises such issues, the FCC must allow the courts to decide this matter. But even if the Commission thought it had *some* authority over Section 253(c), it must at least recognize, as the legislative history recognizes, that if it acts in this area, it will be acting in an extraordinarily complex and sensitive area where it has absolutely no experience or expertise – the pricing of access to public property. If only for prudential reasons, the Commission should defer to the courts.

Finally, even assuming the Commission has jurisdiction to decide a case that Level 3 candidly admits involves Section 253(c), the Commission has previously recognized that where it has concurrent jurisdiction with the courts, it may, and often should, encourage complainants to try individual cases in the courts.¹⁵ As filed, there was and is nothing in the Level 3 case that suggests that it somehow uniquely impinges on “national policy,” or anything that suggests the case required the FCC's expertise. In fact, as discussed above, this case is primarily a contract dispute that involves the sort of complex factual considerations a court may be best suited to decide. Level 3's attempts to transform it into something larger — a revisitation of the Commission's Section 253 rulings — is neither necessary nor, as discussed above, appropriate.

* * *

¹⁴ 141 Cong. Rec. S 8213 (daily ed. June 13, 1995).

¹⁵ See e.g., *In re Amendment of Parts 1, 63 & 76 of the Comm'n's Rules to Implement the Provisions of the Cable Communications Policy Act of 1984*, Memorandum Opinion and Order, 104 F.C.C.2d 386 ¶¶ 16-20 (1986), *aff'd Am. Civil Liberties Union v. F.C.C.*, 823 F.2d 1554 (D.C. Cir. 1987) (referring parties to the courts to resolve franchise fee issues except in those cases that “directly impinge[]” on national policy and implicate “FCC's expertise.”).

MILLER & VAN EATON, P.L.L.C.

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In sum, for a number of procedural reasons, the FCC should decline to reach the merits in this case, and should allow the pending case to move forward in the court system. Any changes to the FCC's standards under Section 253 can be addressed after the National Broadband Plan Task Force completes its work, in a proceeding that considers the policy issues comprehensively and in the full light of public comment. In the meantime, this narrow, historical dispute between two parties that agreed to contract with each other nearly a decade ago is best resolved by the courts.

Very truly yours,

MILLER & VAN EATON, P.L.L.C.

By

Joseph Van Eaton

Counsel for the City of St. Louis, MO

MILLER & VAN EATON, P.L.L.C.

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ATTACHMENT A

Economic Principles of Charging Fees to Access Government Trust Properties

Prepared for
Miller & Van Eaton, P.L.L.C.

By

W. Ed Whitelaw
Bryce Ward

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January 27, 2010

I. AUTHORS

W. Ed Whitelaw

Ed Whitelaw is a professor emeritus of economics at the University of Oregon. He is also founder and chairman of ECONorthwest (“ECONW”), which provides analysis in economics, finance, planning, and policy evaluation for businesses and governments. He received a Ph.D. in economics from the Massachusetts Institute of Technology. He has testified on economic matters in administrative, legislative and Congressional hearings, and in courts. Exhibit A, contains a copy of his vita.

Bryce Ward

Bryce Ward is a senior economist at ECONW. He also has served as a Visiting Assistant Professor at the University of Oregon and Lewis and Clark College, where he taught microeconomic theory, econometrics, public economics, labor economics, and environmental economics. He has testified on economic matters in administrative, legislative, and court proceedings, and presented papers at professional proceedings on economics. He received a Ph.D. in economics from Harvard University. Exhibit B, contains a copy of his vita.

II. PURPOSE

In this report, we address some of the economic principals of charging telecommunication and other firms market-rate fees to access government-owned or managed property, including rights-of-way (ROW), park lands, and other properties.¹

III. SUMMARY OF OUR OPINIONS

Based on our training and experience studying fees to access municipal ROWs, we proffer these opinions:

- Charging a fee to access a City’s ROW ensures efficient use of the ROW. The closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, which is a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.
- Limiting fees to out-of-pocket operations and maintenance (O&M) costs, or requiring that fees be set at less than the relevant market price would distort—artificially increase—the demand for ROW access, subsidize private ROW users, and increase costs to

¹ Throughout this report we refer to government-owned ROWs. Similar economic principals apply to other government-owned or managed properties, although there may be important physical or legal differences between these properties and street ROWs. For example, accessing environmentally sensitive areas or park lands involve different considerations than accessing street ROWs. These considerations include whether the property is appropriate for use by third parties, and could also affect the market price for access in ways that we have not described in detail in the analysis below.

municipalities, their citizens and businesses. Expressed on a cost basis, a market-rate ROW fee should compensate a municipality at a minimum for the fixed costs it incurred establishing and developing the ROW, the opportunity costs of occupying space in the ROW, the costs of managing the municipality-wide ROW, the daily or periodic operations and maintenance costs (O&M), and related administrative costs.

- Valuing ROW using comparable (or more accurate, similar) transactions is common practice that helps establish a market value for ROW.
- A fee based on per-linear foot of installed conduit or on a percentage of gross revenue are commonly used and accepted methods of charging telecom and other services providers for the space their services occupy in municipal ROW.
- We have not seen examples of local governments charging inefficient or inequitable ROW fees. Likewise, we have not seen cases in which a municipality's ROW fees limited the availability or adoption of telecommunication services. Municipalities manage property not to maximize profits or fiscal surpluses but hold the ROW in trust for citizens and local businesses. These trust responsibilities include promoting economic development. A municipality's pricing of ROW access is disciplined by obligations under its trusteeship on behalf of its citizens.

IV. FAIR AND REASONABLE ROW FEES

In this section we describe economic concepts regarding compensation for use of public property, including public ROWs, and competition.

A. COMPENSATION FOR USE OF PUBLIC RESOURCES

Allowing state and local governments to charge market value for use of public ROW and other public property is consistent with the economic principle of using prices to allocate scarce resources. From an economic perspective, a city's ROW is a scarce resource just as lands—public or private—outside a ROW are scarce. In contrast to “free resources,” scarce resources do not “exist in such large quantities that they need not be rationed among those wishing to use them.”²

Economic scarcity, though, encompasses more than a constraint on physical capacity. A resource can be scarce in an economic sense even if it can

² Samuelson, Paul A. and William D. Nordhaus. 2001. *Economics*, 17th Edition. New York: McGraw-Hill. Page 765. For other authors expressing the same concept, see Hall, Robert E. and Marc Lieberman. 1998. *Microeconomics: Principles and Applications*. Cincinnati, OH: South-Western College Publishing. Page 483; O'Sullivan, Arthur and Steven M. Sheffrin. 2001. *Microeconomics: Principles and Tools*, 2nd Edition. Upper Saddle River, N.J.: Prentice Hall. Page 2; Parkin, Michael. 1998. *Microeconomics*, 4th Edition. Reading, MA: Addison-Wesley. Page 42; Tregarthen, Timothy and Libby Rittenberg. 2000. *Microeconomics*, 2nd Edition. New York: Worth Publishers. Pages 3-4.

accommodate all users at a given moment in an engineering sense. For example, if the use of a resource by one party imposes costs on other parties, then it is scarce in an economic sense. This conclusion holds whether the affected party is a city, another user of the ROW (a utility, a commuter, a truck driver, or anyone else) or a resident (a home owner whose property is affected by utility facilities in or under the street).

It is because a city's ROW is scarce that charging for its use makes good economic sense. Economic texts describe a relationship between economic scarcity and economic cost, or opportunity cost:

“Just as scarcity implies the need for choice, so choice implies the existence of cost. ... A decision to have more of one thing requires a decision to have less of something else. It is this fact that makes the first decision costly.”³

“It [opportunity cost] concerns the true economic costs or consequence of making decisions in a world where goods are scarce.”⁴

The history of cities throughout the world offers compelling illustrations of economic scarcity, opportunity costs, and efficiency in the development of ROW.⁵ Examples of cities in which we have observed such scarcity and opportunity costs first hand include New York, Chicago, San Francisco, Portland (Oregon), Tucson, Huntsville, New Orleans, and Seattle. This nearly universal pattern of municipal management of ROW has not arisen by chance or whim. It reflects real and substantial economic forces that create the so-

³ Lipsey, R., et al. 1990. *Microeconomics*, 9th Edition. New York: Harper & Row. Page 4. For other authors expressing the same concept, see Nicholson, Walter. 2000. *Intermediate Microeconomics*, 8th Edition. Fort Worth, TX: The Dryden Press. Page 17; O'Sullivan, Arthur and Steven M. Sheffrin. 2001. Cited previously. Page 24; Parkin, Michael. 1993. *Macroeconomics*, 2nd Edition. Reading, MA; Addison-Wesley, Page 10; Tregarthen, Timothy and Libby Rittenberg. 2000. Cited previously. Page 5

⁴ Samuelson, Paul A. and William D. Nordhaus. 1992. *Economics*, 14th Edition. New York: McGraw-Hill. Page 131. For other authors expressing the same concept, see Hall, Robert E. and Marc Lieberman. 1998. Cited previously. Page 18; McConnell, Campbell R. and Stanley L. Brue. 1996. *Economics*, 13th Edition. New York: McGraw-Hill, Inc. Page 26; Parkin, Michael. 1998. Cited previously. Page 42; Tregarthen, Timothy and Libby Rittenberg. 2000. Cited previously. Page 5.

⁵ For various historical descriptions of the development of streets and rights of way, see Abbott, Carl. 1983. *Portland: Planning, Politics, and Growth in a Twentieth-Century City*. Lincoln, NE: University of Nebraska Press; Baldwin, Peter C. 1999. *Domesticating the Street: The Reform of Public Space in Hartford, 1850-1930*. Columbus, OH: Ohio State University Press. Pages 201-203, 207-208; Barrett, Paul. 1983. *The Automobile and Urban Transit: The Formation of Public Policy in Chicago, 1900-1930*. Philadelphia, PA: Temple University Press. Pages 13-14, 49-50; Bridenbaugh, Carl. 1938. *Cities in the Wilderness: The First Century of Urban Life in America 1625-1742*. New York: Alfred A Knopf. Pages 153-154, 159, 317; Hood, Clifton. 1993. *722 Miles: The Building of the Subways and How They Transformed New York*. New York: Simon & Schuster. Page 84; Pierce, Bessie Louise. 1937. *A History of Chicago: Volume I*. New York: University of Chicago Press. Pages 96, 336; Pierce, Bessie Louise. 1937. *A History of Chicago: Volume II*. New York: University of Chicago Press. Page 325; Quaife, Milo M. 1923. *Chicago's Highways Old and New: From Indian Trail to Motor Road*. Chicago, IL: D.F. Keller & Co. Pages 53-54, 60; Thwing, Anne Haven. 1920. *The Crooked and Narrow Streets of Boston: 1630-1822*. Boston: New England Historic Genealogical Society. Electronic Version; Whitehill, Walter Muir. 1968. *Boston: A Topographical History, 2nd Edition*. Cambridge, MA: The Belknap Press of Harvard University Press. Page 8.

called “joint-allocation problem,” namely, allocating a single, scarce and therefore valuable resource among a number of competing demands.

Occupying space in the above- or below-ground portions of the ROW precludes a city or others from using that same space now and in the future. That is, the three-dimensional space occupied by a given conduit or wire obviously cannot be occupied by another. Besides the physical space occupied by a conduit or pipe, many cities require minimum setbacks or clearances around utilities placed in the ROW. Also, depending on the specifics of the use, the installation, the maintenance, and the replacement of any given facility in the ROW may create problems for and impose costs on the City and on other users of the ROW.

As applied to a city’s ROW, today’s scarcity and the resulting opportunity costs will persist tomorrow. That is, today’s scarcity manifests itself in those many locations in which the use of the ROW for one service inhibits the use of the ROW or other properties for other services by the same or other users. That scarcity and the associated negative spillover effects will persist into the future. Such negative effects may include increased excavation or construction costs, increased costs associated with design and planning, costs associated with loss-of-service attributed to construction accidents or other damage to services in the ROW, increased travel time for vehicular traffic on the ROW, and lost revenues for businesses whose customers are inconvenienced by ROW construction.

Expressed on a cost basis, market-rate ROW fees should compensate a municipality not only for the opportunity costs of occupying space in the ROW, but also for the other costs a municipality incurs related to the ROW. These costs include, at a minimum: the fixed costs of establishing and developing the ROW, the costs over the long term of managing the municipality-wide ROW, the daily or periodic short-term O&M costs, and related administrative costs. Measuring each of these costs for a given ROW transactions would be complex, time consuming and inefficient. There are other, less expensive ways to determine a fair and reasonable market price, and those methods are commonly used by private entities and by federal, state, and local governments.

To the extent that a ROW fee is based on cost and not market price, and the cost does not capture the full range of costs that the municipality incurs related to the ROW, the resulting cost will subsidize the ROW user. That is, the user will not pay the full cost of establishing, occupying and managing the ROW. A subsidy to the ROW user also results in uncompensated costs to the municipality.

Like other real-estate assets within a city’s boundary, a city’s ROW yields value to the users of the ROW. Like other real-estate owners, a city should be able to charge for use of its property. In an economy based on competition, producers and owners of goods and services with economic value typically do not give them away free. In economic markets, prices serve as signals that

help society put its resources to efficient use.⁶ Not charging for use of the City's ROW would treat it as if it were a free good with no economic value. "A true 'free good' is one which is not scarce ... Examples of free goods are rare and perhaps becoming rarer still—sunshine in the Sahara Desert provides one example."⁷

Charging fees less than market rates for ROW access sends the signal that the resource is worth less than its true value. This could lead to inefficient use of the ROW that would also subsidize the user, and leave the municipality with uncompensated ROW-related costs.

Allocating the ROW by first-come, first-serve or on some other non-market basis makes no economic sense, especially given the external costs imposed on third parties if a ROW is over-consumed by any individual enterprise. The same result follows if one artificially limits a community to charging fees at less than fair market value. This is easily prevented by charging a ROW fee that reflects the ROW as a valuable asset or resource for which there are important and competing uses. Free and unrestricted—or underpriced—access to a City's ROW would increase the demands on the ROW and place substantial economic burdens on the City through additional inspection, maintenance and construction costs. Free or underpriced access would also increase the costs to other ROW users through unnecessary make-ready expenses, unnecessary design and modification expenses, and unnecessary repairs and disruptions caused by overuse of the resource.

Charging a fee helps ensure that the ROW will be used efficiently, that is, that the ROW will not be misused or wasted. Furthermore, the closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.

B. CALCULATING FAIR MARKET VALUE FOR OCCUPYING SPACE IN A CITY'S ROW

The appraisal literature describes a number of methods for calculating the market value of ROW access. We describe four methods.⁸ The central point here is not that these methods are the only methods, or that a price is unreasonable unless it passes muster under one of these four tests. Rather, it

⁶ See, for example, Byrns, Ralph T. and Gerald W. Stone, Jr. 1992. *Economics*, 5th Edition. New York: HarperCollins. Page 71; Nicholson, Walter. 1998. *Microeconomic Theory*, 7th Edition. Fort Worth, TX: Dryden Press. Pages 514-515; Pindyck, Robert S. and Daniel L. Rubinfeld. 2000. *Microeconomics*, 5th Edition. Upper Saddle River, N.J.: Prentice Hall. Page 590; Samuelson, Paul A. and William D. Nordhaus. 2001. Cited previously. Pages 27, 291.

⁷ Pearce, David W. (ed). 1997. *The MIT Dictionary of Modern Economics*, 4th Edition. Cambridge: The MIT Press, Page 163.

⁸ National Oceanic and Atmospheric Administration (NOAA). 2002. *Final Report: Fair Market Value Analysis for A Fiber Optic Cable Permit in National Marine Sanctuaries*. NOAA, National Ocean Service, National Marine Sanctuary Program. August. Pages 7-13.

is that there are a number of well-recognized ways of identifying the market value for property that do not require significant regulation.

1. Land-based appraisals: Analysts calculate the value of a ROW based on the value of land adjacent to the ROW. This is sometimes referred to as the “across-the-fence” (ATF) method. A variation on the ATF method acknowledges that because a ROW provides a continuous corridor, a ROW has a higher value than the disparate, unassembled adjacent parcels. This corridor value can exceed the ATF value by a factor of six or more.
2. The willing-buyer-and-willing-seller method: Analysts seek to replicate market negotiations over the value of the ROW. The seller considers his or her costs, including the value he or she could earn from other uses of the land. The buyer considers the income-generating potential of the ROW and the costs of alternative routes.
3. Income-based methods of valuation: Analysts take as given that a variety of assets contribute to a firm’s income or value. A ROW may be one of many income-generating assets from which a firm would expect to earn a reasonable return. The analysts base the market value of the ROW on the return the asset generates for the firm.
4. The comparable-transactions method: Analysts base the market value of ROW on the sales or rental agreements for similar ROW. Information on most ROW transactions between private entities remains confidential. More publicly available information exists on ROW agreements between municipalities and private firms that want access to municipal ROW. The study of comparable transactions is an established practice for valuing ROW.⁹ The degree of similarity between the comparable transactions and the ROW at issue helps specify the high and low measures of fair market value.¹⁰

⁹ See, for example, Fitzgerald, Shawana. 2005. *Review of Fiber Optic Right of Way Pricing*. Prepared for the City of Portland. August 31. Page 6; NOAA. 2002. Cited previously; U.S. Department of Justice. 2001. *Uniform Appraisal Standards for Federal Land Acquisitions*. <http://www.usdoj.gov/enrd/land-ack/yb2001.pdf>

¹⁰ Ring. A. 1970. *The Valuation of Real Estate*. Prentice Hall. In, Quan, D. and J. Quigley. 1989. “Inferring an Investment Return Series for Real Estate from Observations on Sales.” *Journal of the American Real Estate and Urban Economics Association*, 17(2); and U.S. Department of Justice. 2001. Cited previously.

V. ROW FEES BASED ON PERCENTAGE OF GROSS REVENUE OR PER LINEAR FOOT

A. A ROW FEE BASED ON A PERCENTAGE OF GROSS REVENUES IS AN ACCEPTED METHOD OF ESTIMATING A FAIR AND REASONABLE ROW FEE

Charging a fee that is a percent of gross revenues is a reasonable way to price the ROW. Furthermore, it meets the generally accepted standard in economics for efficient compensation in exchange for goods or services, namely, a price that reflects the value of the good or service to the buyers and sellers. ROW, like other real-estate assets, convey value to users. Using the City's ROW conveys or adds value to the wireline telecoms that provide services through the ROW.

This method is straightforward and has low transaction costs. That is, both the City and the wireline telecoms can resolve the amount owed with minimal accounting and auditing. Moreover, a percentage-based fee is convenient because the fee directly tracks the amount of business passing through ROW facilities. Therefore, the fee reflects a reasonable and up-to-date measure of the value the wireline telecoms receive from using the City's ROW.

Considering the fees paid by telecom providers to municipalities provides meaningful information that can be useful when judging the reasonableness of fees paid by wireline telecoms. For example, telecom providers in Fargo, North Dakota¹¹; Henderson, Nevada¹²; Wichita, Kansas¹³; Baton Rouge, Louisiana¹⁴; and Portland, Oregon¹⁵ pay a ROW fee of 5 percent of gross revenues. Telecom providers in Georgia pay a fee of 3 percent of gross revenues to municipalities.¹⁶

¹¹ Fargo City Code. 2000. Article 24-03: Grant of Access and Use of Public Rights-of-Way. Pages 24-85.

¹² Henderson Municipal Code. Section 4.05.020(B)(1)(a). <http://library6.municode.com/default-test/home.htm?infobase=16399&doc-action=whatsnew>

¹³ Wichita City Code. Section 3.93.004: Franchise and License Fees. Subsection 4.2:Franchise Fees. <http://www.wichitagov.org/CityCode/Default.htm?code=3980>

¹⁴ City of Baton Rouge. 1989. City-Public Utility Ordinance. Adopted Metropolitan Council December 13. Ordinance 9027. <http://brgov.com/DEPT/FINANCE/ordpubut.htm>

¹⁵ City of Portland, Cable Communications and Franchise Management, <http://www.portlandonline.com/cable/index/cfm?c=33150>

¹⁶ State of Georgia, Offices of House and Senate Research. 2002. *Joint Study Committee on Franchise Fees and Conditions, Rights of Way & Tax Implications of Competitive Markets*. http://www.legis.state.ga.us/legis/2001_02/senate/research/franchise.html

B. A ROW FEE BASED ON A FEE PER LINEAR FOOT IS AN ACCEPTED METHOD OF ESTIMATING A FAIR AND REASONABLE ROW FEE

Calculating ROW fees on a per-linear foot basis is another accepted method of estimating the market value for using the ROW. In a survey of different fee structures used by municipalities to charge for ROW use, Bucaria and Kuhs found that charging based on linear feet of ROW is a fee structure commonly used by municipalities.

“The fact that there are established telecommunications corridor right-of-way rental markets allows some direct rental rate comparisons to be made, often in terms of dollars paid annually per lineal foot of right of way, or conduit, or cable.”¹⁷

“Linear measure for both sales and rental comparison purposes are comparison approach methods. They are well accepted by both industry and property owner representatives. Linear measure data is relatively plentiful. Accordingly, use of this method of market comparison is valid and useful in telecommunications corridor valuation situations.”¹⁸

Bucaria and Kuhs also note that the rate per linear foot may vary depending on the number of lines of fibers installed and the diameter of the conduit.

In a report on ROW fees, Fitzgerald also notes that charging for ROW access on a per-linear foot basis is common among municipalities.

“Many entities charge for right of way easements on a per foot basis. Some of the fees are paid one-time, and others are charged annually. Such charges may not capture the full economic value of a right of way since they are not directly connected to the economic return earned by the entity granted the right.”¹⁹

Per-linear-foot charges in municipalities with which we are familiar include: Macon, Georgia, \$4.50; Savannah and Atlanta, Georgia, \$5.00; Gainesville, Florida, \$4.00;²⁰ Huntsville, Alabama charges \$4.50 per foot for the first five years, increasing \$1.50 per foot the next five years, and increasing an additional \$1.50 per foot the next five years;²¹ Burbank,

¹⁷ Bucaria, Charles and Robert Kuhs. 2002. “Fiber Optic Communication Corridor Right-of-Way Valuation Methodology.” *The Appraisal Journal*. April. Page 138.

¹⁸ Bucaria and Kuhs. 2002. Previously cited. Page 143.

¹⁹ Fitzgerald, 2005, previously cited, page 8.

²⁰ Personal communication with staff in the City of Huntsville, Alabama, pursuant to a prior engagement.

²¹ An Ordinance Respecting the Use of the Public Rights-of-Way in the City of Huntsville, Alabama by Level 3 Communications, LLC. Ordinance No. 00-819. October 12, 2000. Section 8.1.

California, \$3.99 per foot;²² Glendale, California, \$1.80 per foot;²³ Rialto, California, \$2.00 per foot;²⁴ the City of Portland, Oregon charges approximately \$2-3 per linear foot²⁵; and Massachusetts charges \$3.61 - \$6.25²⁶

Also, the Fitzgerald Report describes a number of contracts between public entities and a variety of parties for occupying space in the ROW or in other similar resources. Per-linear-foot charges are common when entities want to occupy a finite number of feet. Annual per-linear-foot charges ranged from less than \$1.00 to over \$100 per foot, where the higher charges are either for the placement of multiple ducts or fibers or for occupying space in resources such as elevated highways or the New York/New Jersey Lincoln Tunnel.²⁷

VI. TRUSTEE OBLIGATIONS DISCIPLINE MUNICIPAL ROW FEES

We have not seen examples of local governments charging inefficient or inequitable ROW fees. Likewise, we have not seen cases in which a municipality's ROW fees limited the availability or adoption of telecommunication services. Municipal entities have different goals, responsibilities, and functions than do corporate entities. Municipalities hold resources—including ROW resources—in trust for its citizens and businesses. For example, municipalities manage ROWs not to maximize profits or fiscal surpluses, but to promote economic development. Therefore, a municipality's pricing of ROW access is disciplined by obligations under its trusteeship to encourage ROW access that helps promote economic growth and development for residents and businesses. To the extent that the electorate feels that elected officials have mismanaged their trust responsibilities regarding ROW access or other resources, they can recall or not reelect these officials. Managing resources in ways that keep the public trust also helps discipline municipal pricing of ROW access.

Moreover, the proposition that a local government would exercise monopoly power and charge supra-competitive rates to access its ROWs—even if it had such monopoly power—is an obviously flawed economic-development strategy. Municipalities compete vigorously with one another to

²² Encroachment Permit Agreement between Level 3 Communications, LLC and the City of Burbank. October 12, 2000.

²³ Telephone Corporation Encroachment Permit Agreement between Level 3 Communications, LLC and the City of Glendale.

²⁴ Telecommunications Encroachment Permit Agreement between Level 3 Communications, LLC and the City of Rialto. October 16, 2000.

²⁵ City of Portland, Cable Communications and Franchise Management, <http://www.portlandonline.com/cable/index.cfm?c=33150>

²⁶ Fitzgerald, 2005, previously cited.

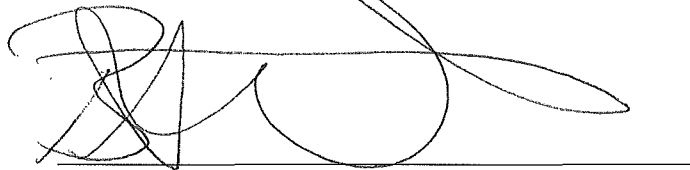
²⁷ Fitzgerald, 2005, previously cited, p. 11.

attract and encourage deployment of advanced and reliable utilities, that will in turn, attract and support new industrial, commercial and residential development. This is a strong incentive not to overprices the fees to access ROWs.



W. Ed Whitelaw

1-27-10



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Ph.D., Economics, Massachusetts Institute of Technology, 1968

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2009- Chair of Board, ECONorthwest
1974-09 President, ECONorthwest
2000- Professor Emeritus, Department of Economics, University of Oregon
1981-00 Professor, Department of Economics, University of Oregon
1987-90 President, Economic Policy Institute Northwest (EPI)
1970-81 Associate Professor, Department of Economics, University of Oregon
1974-75 Staff Economist, Oregon Coastal Conservation and Development Commission
1970-71 Visiting Research Fellow and Director of Urban Studies, Institute for Development Studies, University of Nairobi, Kenya (financed by the University Development Program, Rockefeller Foundation)
1970-71 Chief Economist, Nairobi Urban Study (financed by the Nairobi City Council, the Kenya Ministry of Finance and Economic Planning, and the United Nations Development Program)
1967-70 Assistant Professor, Department of Economics, University of Oregon
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1964-67 New England Economic Research Foundation and Federal Reserve Bank of New York
1961-62 Colgate Palmolive, Special Projects Division (programming, statistics)

HONORS, FELLOWSHIPS, AND SCHOLARSHIPS

University of Oregon
Ersted Award for Outstanding Teaching, 1970

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TECHNICAL ADVISORY AND EDITORIAL POSITIONS

- 1998- Goal 5 Regional Resources for Fish and Wildlife Habitat Protection Peer Review
 Committee, Portland Metro
- 1991- Board of Economists, *Eugene Register Guard*
- 1989-05 Oregon Progress Board, State of Oregon; committees: Chairperson, Benchmark
 Update Committee; Member, Vision Committee; Member, Sustainability
 Measurement Work Group
- 1995-98 National Advisory Council for Environmental Policy and Technology, Environmental
 Protection Agency
- 1987-92 Forecast Panel, *Pacific Northwest Executive*
- 1988-90 Board of Advisors, Northwest Policy Center, Seattle, Washington
- 1980-90 Board of Directors, Pacific Northwest Regional Economic Conference
- 1987-89 Economic Development Commission, State of Oregon
- 1986-87 Board of Directors, Eugene-Springfield Metropolitan Partnership
- 1984-86 Board of Economists, *Portland Business Journal*
- 1979-86 Head, Real Estate Research Committee, Eugene-Springfield
- 1972-86 Editorial Committee, *The Annals of Regional Science*
- 1984-85 Business Forecast Panel, *Oregonian*
- 1984-85 Demand Forecasting Advisory Committee, Northwest Power Planning Council
- 1981-83 Scientific and Statistical Advisory Committee, Northwest Power Planning Council
- 1980-82 Governor's Council of Economic Advisors, State of Oregon
- 1980 Water Resources Division, Department of Natural Resources and Conservation,
 State of Montana
- 1979-80 Employment and Training Division, Department of Labor and Industry, State of
 Montana
- 1977-78 Advisory Committee on Economic Decline and Fiscal Stress in Cities, President's
 Domestic Council
- 1977-78 Task Force on Local Economic Planning, Oregon Department of Economic
 Development
- 1976-77 Advisory Committee, National Science Foundation Project on Onshore Impacts of
 Offshore Oil and Gas Exploration and Development
- 1972-75 Citizens' Advisory Committee on Transportation Planning, Lane Council of
 Governments, Lane County, Oregon
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"Breaching Dam Myths." *Oregon Quarterly*. Autumn 2000.

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- Community Health, Mark O. Hatfield School of Government, Portland State University. 2000.
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- Salmon and the Economy: A Handbook for Understanding the Issues in Washington and Oregon*. Under a Grant provided by: The Center for Watershed and Community Health, Mark O. Hatfield School of Government, Portland State University. With E. Niemi, D. Lindahl, A. Fifield, and M. Gall. November 1999.
- An Economic Strategy for the Lower Snake River*. Trout Unlimited. With E. MacMullan. November 1999.
- "Reforming Welfare Reform." *Oregon Quarterly*. With J. Tapogna. Autumn 1999.
- The Sky Did NOT Fall: The Pacific Northwest's Response to Logging Reductions*. Earthlife Canada Foundation and Sierra Club of British Columbia. With E. Niemi and A. Johnston. April 1999.
- The Ecosystem-Economy Relationship: Insights from Six Forested LTER Sites*. National Science Foundation. With P. Courant and E. Niemi. November 1997.
- "Costs and Benefits: Reflections of an Oregon Economist." *Inquiry*. November 21, 1997.
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- Integrating Resource Conservation and Economic Development*. With P. Courant and E. Niemi. 1997.
- "New Economic Perspectives of Ecosystem Management: A Critique of Recent Efforts." May Submission to *Environmental Management*. With P. Courant and E. Niemi. 1997.
- Facing the Tradeoffs: Economic Development and Resource Conservation in Louisiana*. With E. Niemi, C. Heflin, and A. Gorr. June 1996.
- The Potential Economic Consequences of Designating Critical Habitat for the Marbled Murrelet: Final Report*. U.S. Fish and Wildlife Service, Portland Field Office. With E. Niemi, E. MacMullan and D. Taylor. May 1996.
- The Potential Economic Consequences of Designating Critical Habitat for the Rio Grande Silvery Minnow: Draft Report*. U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office. With E. Niemi and T. McGuckin. 1996.
- Economic Well-Being and Environmental Protection in the Pacific Northwest*. Pacific Rivers Council. With T. Power. 1996.
- Pacific Northwest Regional Economic Elements Affected by Fish Hatchery Management Decisions*. Columbia Basin Fish and Wildlife Foundation. With E. Niemi. 1996.
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The Potential Economic Consequences of Critical Habitat Designation for the Lost River Sucker and the Shortnose Sucker: Final Report. U.S. Fish and Wildlife Service, Portland Field Office. With E. Niemi and E. MacMullan. August 1995.

Economic Consequences of Management Strategies for the Columbia and Snake Rivers. Confederated Tribes of the Umatilla Indian Reservation. With E. Niemi and E. MacMullan. July 1995.

Integrating Economics and Resource-Conservation Strategies. With E. Niemi. June 1995.

The Columbia River and the Economy of the Pacific Northwest. With E. Niemi, A. Gorr, and E. MacMullan. May 1995.

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"Oregon's Money Doesn't Just Grow on Trees." *The Oregonian*. April 1995.

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The Full Economic Costs of Proposed Logging on Federal Lands. With E. Niemi. March 1995.

Economic Consequences of an Injunction to Protect Salmon Habitat on the Wallowa-Whitman and Umatilla National Forests: Preliminary Report. With E. Niemi and E. MacMullan. 1995.

The Potential Economic Consequences of a Reduction in Timber Supply from the Tongass National Forest. With E. MacMullan. December 1994.

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"Growing Pains." *Oregon Quarterly*. With T. Moore. Spring 1994.

Economic Critique of the FSEIS on Management of Old-Growth Habitat. With E. Niemi. March 1994.

"Guessing at the 'Hood: An Urban Future." *Oregon Business*. January 1994.

"After the Owl." *Old Oregon*. With E. Niemi. Winter 1993. Reprinted in the *Seattle Post-Intelligencer* as "Jobs & Nature," December 12, 1993.

Environmental Externalities and Utility Regulation. Washington, DC: National Association of Regulatory Utility Commissioners. With E. Niemi. September 1993.

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"Payback Time." *Old Oregon*. Spring 1992.

"A More Civil War." *Old Oregon*. With E. Niemi. Winter 1990.

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Investing in Dislocated Families. With E. Niemi. 1990.

"A Log-Export Ban, Alone, Is Not Enough." *The Register-Guard*. With E. Niemi. October 13, 1989. Reprinted in the *Oregonian*, Pacific Northwest International Trade Association's *Trade Winds*, and various Oregon weeklies.

"Money: The Debt We Owe Ourselves." *Old Oregon*. With E. Niemi. Autumn 1989.

"Plan Now for More Timber Industry Changes." *The Register-Guard*. With E. Niemi. July 25, 1989. Reprinted in the *Oregonian*.

Looking Beyond the Owls and the Logs: A White Paper. Prepared for Governor Goldschmidt's statewide Timber Summit. With E. Niemi. June 1989.

"Improving Oregon's Economy by Improving its Schools." *Proceedings of the 23rd Annual Pacific Northwest Regional Economic Conference*. With E. Niemi. June 1989.

"Migration, Economic Growth, and the Quality of Life." *Proceedings of the 23rd Annual Pacific Northwest Regional Economic Conference*. With E. Niemi. June 1989.

"The Greening of the Economy." *Old Oregon*. With E. Niemi. Spring 1989. Reprinted in the *Oregonian* (April 3, 1989), the Sierra Club's *Runoff* (April 1989), and *Forest Watch* (April 1989).

"The West, Garbage, and the American Dream." *Pacific Northwest Executive*. With E. Niemi and T. Moore. January 1989.

"The Once and Future Northwest." *Old Oregon*. With E. Niemi. Autumn 1988.

"Developing a Strategic Plan for Regional Economic Growth." *Proceedings of the 22nd Annual Pacific Northwest Regional Economic Conference*. June 1988.

"Getting Controversial Public Facilities Built: How Can Economics Help?" *Proceedings of the 22nd Annual Pacific Northwest Regional Economic Conference*. With T. Moore. June 1988.

"Electricity Prices and Economic Development: Implications for the Pacific Northwest." *Proceedings of the 22nd Annual Pacific Northwest Regional Economic Conference*. With E. Niemi. June 1988.

"Focusing the Northwest's Vision." *The Once and Future Northwest*. University of Washington Institute for Public Policy and Management, Northwest Policy Center. With E. Niemi. April 1988.

"Focusing the Northwest's Vision." *Pacific Northwest Executive*. With E. Niemi. 1988.

"Strategic Economic Development for Oregon." *Governmental Notes*. University of Oregon, Bureau of Governmental Research and Service. December 1987.

Accelerating Our Economic Development: Two Views. Olympia, WA: Washington State Institute for Public Policy. With T. Tabasz. October 1987.

"New Economic Strategies for Regional Development." *Proceedings of the 21st Annual Pacific Northwest Regional Economic Conference*. June 1987.

"Local Economy Slipped During the 1980s, Teachers Kept Ahead of Inflation." *The Register-Guard*. With E. Niemi. May 5, 1987.

Managing Old-Growth Forests in the Pacific Northwest: Reducing the Costs of Preservation. With R. Mendelsohn, E. Niemi, C. Binckley, and R. Gregory. May 1987.

"Investing in Oregon's Interests: Oregon Using Wrong Strategies." *The Register-Guard*. January 27, 1987.

"The Once and Future Northwest." *Pacific Northwest Executive*, 2 (3). July 1986.

"Smokestack Memories: The Future in Our Past." *Visions*. Oregon Graduate Center. Spring 1986.

"Economic Choices for the Future of Our Region." *Old Oregon*. University of Oregon Round Table. Autumn 1985.

"More Is More: Small Businesses Bring Diversity, Vigor to Economy." *Oregonian*. June 16, 1985.

"The Economy and the Student: Students Need More Training in Analysis and Expression." *The Register-Guard*. May 22, 1984.

"Rising Housing Starts Needed to Trigger Employment Drop: Local Economy May Stay Bad 'Til '84." *The Register Guard*. February 23, 1984.

Analysis and Forecasts of the Demand for Rock Materials in Oregon. Oregon Department of Geology and Mineral Industries. Special Paper 5. With J. Friedman and E. Niemi. 1979.

Rural-Urban Relations, Low-Income Settlements, Intra-Urban Mobility and the Spatial Distribution of Households in Nairobi, Kenya. Working Papers in Economics No. 6. Eugene, OR: University of Oregon, Department of Economics. 1974.

Nairobi Household Survey: Description of the Methodology and Guide to the Data. Discussion Paper No. 116. Nairobi. Kenya: University of Nairobi, Institute for Development Studies. 1971.

Nairobi Household Survey: Some Preliminary Results. Staff Paper No. 117. Nairobi, Kenya: University of Nairobi, Institute for Development Studies. 1971.

The Employment and Income History of a House Servant in Nairobi 24. Staff Paper No. 116. Nairobi, Kenya: University of Nairobi, Institute for Development Studies. 1971.

The Objectives and Tasks of the Economics Group for the Urban Studies of Nairobi. Staff Paper No. 84. Nairobi, Kenya: University of Nairobi, Institute for Development Studies. 1970.

Interstate Comparisons of State and Local Revenues and Expenditures. Eugene, OR: University of Oregon, Bureau of Governmental Research. 1968.

CONSULTING PROJECTS

Conducted a valuation of a right-of-way occupied by a discharge pipeline from the Georgia Pacific facility in Toledo for the City of Newport. City of Newport, Oregon. 2008-ongoing

Provided data collection services to determine garbage and yard debris can weights and set-out rates for a city. City of Eugene, Oregon. 2008-ongoing

Analyzed the social costs and benefits underlying aggregate mining on prime farmland. Private client. 2006-2007

Evaluated the economic and policy issues related to a proposed urban housing development. City of Portland, Oregon. 2006-2007

Critiqued a draft economic analysis of land use conflicts between aggregate mining and agriculture in Oregon. Oregon Farm Bureau Special Aggregate Committee. 2005.

For a state agency, reviewed an analysis of the long-term benefits, costs, and risks of alternative cleanup remedies for a Superfund site located in a marine environment near a major metropolitan area. Private client. 2005.

Reviewed and evaluated the economic components of a feasibility study and preferred clean-up remedy for a contaminated site. Washington Department of Ecology. 2005.

Developed a model to calculate the range of economic costs and benefits of projects and policy options that affect water quality and quantity in the City of Portland's watersheds and in a section of the Willamette River. City of Portland. 2003-2005.

Described the economic tradeoffs of allowing, limiting, or prohibiting development in significant riparian areas and wildlife habitat in the Portland metropolitan area. 2002-2004.

Contributed to the drafting of a letter signed by more than 100 economists and addressed to President Bush and the governors of eleven western states regarding the economic importance of the West's natural environment. Center for Watershed and Community Health. 2003.

Studied the economic impacts associated with the operation of a hospital. Private client. 2001-2003.

Developed an economic model that calculated the net benefits of riparian-restoration projects. Clean Water Services. 2002.

Examined the competition for water in the Upper Klamath Basin and the relationship between water and the economy. Public Interest Projects. 2000-2002.

Developed a method for determining the sediment-related costs imposed on the City of Salem and its industrial/commercial water users during and following a major flood event in the North Santiam watershed. U.S. Environmental Protection Agency and National Science Foundation. 1997-2002.

Developed a handbook on the economic factors associated with relicensing a hydroelectric dam. Hydropower Reform Coalition and American Rivers. 2001.

Studied the economic issues associated with water management services and the economic implications associated with the federal Endangered Species Act and Clean Water Act. Clean Water Services. 2001.

Developed a mitigation plan for the potential negative economic consequences of bypassing four dams on the Lower Snake River. Trout Unlimited. 1999-2000.

Initiated a multi-year effort to assess the economic costs and benefits of salmon conservation measures in the Pacific Northwest. Center for Watershed and Community Health and Ford Foundation. 1998-2001.

Determined the share of natural and actual streamflow that originates on national-forest lands in Oregon's Willamette River Basin. U.S. Environmental Protection Agency. 2000.

Evaluated issues of regulatory takings and compensation, discussed the potential effects of various implementations of Measure 7, and proposed guidelines for public policies that address the issues that Measure 7 raised. Oregon Business Council. 2000.

Assessed the potential economic benefits and costs of the reservoir, related infrastructure, and activities included in the proposed Animas-La Plata project in southwestern Colorado. Earthjustice. 2000.

Evaluated the potential economic consequences of efforts to adjust Oregon forest practices to provide a high probability of protecting and restoring aquatic habitat on forestlands important for salmonids. Pacific Rivers Council. 1998-1999.

Evaluated the economic consequences of ecosystem-management decisions in the upper Willamette River Basin and how these consequences influence water and land use in the Eugene-Springfield area. U.S. Environmental Protection Agency. 1998-2000.

Analyzed the ecological, demographic, and economic benefits and costs of watershed restoration as part of a multidisciplinary team working to balance ecological needs with social constraints on investments. U.S. Environmental Protection Agency. 1997-2001.

Designed the analysis and determined the economic causes and effects relevant to the dynamic ecological systems characterizing the Willamette River Basin in Oregon. U.S. Environmental Protection Agency. 1995-2001.

Evaluated the economic impacts of bypassing four federal dams on the Lower Snake River and developed a plan to mitigate the negative consequences of the bypass. Trout Unlimited and Earth Justice. 1999.

Critiqued a draft report by the U.S. Forest Service regarding the demand for timber in the Tongass Forest. Alaska Rainforest Campaign. 1999.

Evaluated the economic consequences of new restrictions on Alaska's fishing industry. Earth Justice. 1999.

Described the economy's response in the Pacific Northwest to the dramatic reductions in logging that occurred during the 1980s and 1990s. BC Wild, Earthlife Canada Foundation, and Sierra Club of British Columbia. 1998-1999.

Analyzed the economic impacts of river and wetlands restoration in the Missouri River Basin and prepared a manual for assessing the socioeconomic impacts of ecological restoration projects for rivers and floodplains in the western United States. U.S. Environmental Protection Agency. 1995-1997.

Analyzed the relationship between the regional economy and natural resources of Louisiana by presenting workshops and developing an information base for local stakeholders. Ford Foundation and Louisiana State University. 1996-1997.

Analyzed problems related to scarce water resources, environmental protection, economic development, tribal self-determination, public health, and public land management in the Upper Rio Grande Basin, and recommended actions and federal policies to resolve these problems. Western Water Policy Review Advisory Commission. 1996-97.

Conducted a three-year study to describe, explain, and communicate the relationships of forested ecosystems and regional economies. National Science Foundation. 1994-1997.

Developed the preliminary design of a study to assess the potential economic costs and benefits of mandatory medical monitoring of agricultural workers who load, mix, or apply the pesticide cholinesterase. Sierra Club Legal Defense Fund. 1996.

Evaluated alternatives for reforestation of marginal agricultural lands in the Lower Mississippi Delta. Business Council for Sustainable Development. 1996.

Analyzed the relationship between the regional economy and natural resources of Louisiana. W. Alton Jones Foundation. 1995-1996.

Analyzed the environmental externalities associated with industrial activities affecting coastal and estuarine resources in Louisiana. W. Alton Jones Foundation. 1995-1996.

Evaluated the role of natural resources and traditional extraction industries in the Pacific Northwest and how they influence future economic trends for individual communities. Pacific Northwest Economics Workshop, Pacific Rivers Council. 1995-1996.

Conducted an economic analysis of the designation of critical habitat for the Rio Grande silvery minnow in the Rio Grande River Basin. U.S. Fish and Wildlife Service. 1994-1996.

Conducted an economic analysis of the designation of critical habitat for the marbled murrelet in Oregon, Washington, and California. U.S. Fish and Wildlife Service. 1994-1996.

Described the economic effects of the designation of critical habitat to support the recovery of two endangered fish in the Upper Klamath Basin. U.S. Fish and Wildlife Service. 1993-1996.

Prepared a response to the *Draft Environmental Impact Statement for the System Operation Review* prepared by the federal water-management agencies for the Columbia River. Confederated Tribes of the Umatilla Indian Reservation. 1995.

Analyzed the role of the Columbia River in the economy of the Pacific Northwest and described an economic framework for analyzing the economic consequences of alternatives for managing the Columbia River. Northwest Water Law and Policy Project. 1995.

Prepared a paper that demonstrated a common analytical framework for economic analysis to integrate resource-conservation and economic-development strategies. Ford Foundation, Rural Poverty and Resources Program. 1995.

Analyzed issues related to integrating economics and resource-conservation strategies. Ford Foundation. 1995.

Analyzed the economic principles applied to state water regulation, describing how historic and current water-regulatory policies violate these principles, and illustrating the economic costs that accrue to citizens. Bullitt Foundation and Water Watch. 1994-1995.

Analyzed the relationship between the regional economy and natural resources of the Southern Appalachians. U.S. Forest Service. 1994-1995.

Analyzed the Interior Columbia River Basin Ecosystem Management Project to ensure it internalized the externalities of resource-extraction industries on federal lands in eastern Washington, eastern Oregon, and Idaho. W. Alton Jones Foundation. 1994-1995.

Evaluated the economic components of old-growth forests associated with spotted owls and illustrated the potential impact on employment of forest-management alternatives that would jeopardize the region's quality of life. Private client. 1994.

Analyzed the economic impacts of curtailing grazing on public lands that support endangered salmon in eastern Oregon, eastern Washington, and Idaho. Pacific Rivers Council. 1994.

Calculated the economic impacts and values associated with the public acquisition of private land for use as a wildlife habitat. Washington Department of Wildlife. 1993.

Analyzed the timber situation in the Pacific Northwest in the context of the laws passed by Congress, the actions of executive-branch agencies, and the rulings of the federal judiciary. Wilderness Society. 1993.

Calculated the economic impact associated with a proposal to restrict logging in the Sequoia National Forest and to establish the Sequoia National Monument. Private client. 1993.

Developed a method for assessing the economic effects of designating critical habitat for threatened or endangered species. U.S. Fish and Wildlife Service. 1993.

Integrated the results from past studies into a summary of the economic importance of the salmonid fishery in the Pacific Northwest. Pacific Rivers Council. 1993.

Assisted with the design and conducted an economic evaluation of the Pacific River Council's Restoration Initiatives, a series of demonstration projects designed to rehabilitate degraded watersheds. Pacific Rivers Council. 1993.

Described the theoretical issues underlying efforts by state commissions to introduce environmental externalities into the regulatory process, the procedural opportunities for doing so, and the practical lessons from case studies of six states. National Association of Regulatory Utility Commissioners. 1992-93.

Analyzed the social implications of managing the federal forests in the Douglas-fir regions on longer rotations. U.S. Forest Service. 1992.

Developed the preliminary study design for using contingent-valuation methods to determine the value of environmental externalities from electrical generation and transmission. U.S. Department of Energy, Bonneville Power Administration. 1992.

Developed and evaluated alternative approaches for ensuring that the activities of state and federal agencies are consistent with Oregon's Strategic Plan. Oregon Economic Development Department. 1992.

Evaluated adjustments applied to the economic costs of alternative energy resources to account for environmental externalities in PGE's least-cost planning effort. Portland General Electric. 1992.

Provided the Tri-County Metropolitan Transportation District in Portland with quarterly forecasts of its payroll-tax revenues, payments from the State of Oregon, the region's economic condition, employment by industry, income by source, the price of diesel fuel, and the consumer price index for urban wage earners. Tri-County Metropolitan Transportation District. 1981-92.

Collected data on the costs (equipment, resources, personnel) of responding to an offshore oil spill within 24 hours. Private client. 1991-92.

Designed and conducted research on the impacts of land use on Oregon's transportation systems and costs. Oregon Department of Transportation. 1991-1992.

Developed a strategic plan for allocating state resources to assist dislocated workers and timber-dependent communities, and a set of legislative recommendations for implementing the plan. Oregon State Legislative Joint Committee on Forest Products Policy. 1990.

Described the forces and factors that underlie the controversy surrounding the U.S. Forest Service's land-management program and outlined corrective actions. U.S. Forest Service. 1990.

Analyzed the impact of listing the spotted owl as an endangered species for several public and private clients, including the City and School District of Eugene, Oregon, the Tri-County Metropolitan Transportation District in Portland, and electric utilities in the Eugene metropolitan area. 1990.

Assessed the impacts of timber harvests with and without a change in forest management policy that would protect most or all of the remaining old-growth forest on federal lands in three timbersheds: Grays Harbor and Pacific Counties in Washington; Linn and Lane Counties in Oregon; and Siskiyou County in California. Wilderness Society. 1990.

Assessed policies for redirecting growth from the Puget Sound region to other parts of the state and policies for redirecting growth within the Puget Sound region. Puget Sound Council of Governments. 1990.

Described the economic and environmental impacts of the Exxon Valdez oil spill on Alaska's communities. 1989-90.

Analyzed the potential contribution to local and regional economic development of a proposed mixed-use development in downtown Eugene and the appropriateness of state support for required utility relocation. City of Eugene. 1989.

Developed a method for setting fees for over 500 services Lane County provides. Lane County Finance and Management Services. 1987-88.

Analyzed proposed economic-evaluation procedures for allocating unappropriated water in the Snake River Basin, especially the adaptation of benefit-cost methodologies designed for federal decision-making to state and local policy. Idaho Office of the Governor, Division of Financial Management. 1985-88.

Supervised and directed the analysis of the economic costs and benefits of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program. Northwest Power Planning Council. 1988.

Analyzed the economic feasibility of relocating the section of Interstate-5 between the Marquam and Fremont bridges in Portland. City of Portland, Department of Transportation. 1988.

Conducted an economic feasibility analysis of a proposed publicly owned cable-television system. Springfield Utility Board. 1987-88.

Analyzed the economic impact of a plant closure in Dallas, Oregon and advised government officials on immediate mitigative solutions and on long-term economic development strategies. Mid-Valley Council of Governments. 1988.

Analyzed the development of independently owned, small electricity generators operating under PURPA contracts in Oregon. Oregon Public Utility Commission. 1988.

Analyzed the rate of absorption of industrial space in the Eugene-Springfield area since 1976. Eugene/Springfield Metropolitan Partnership. 1987-88.

Evaluated several land-use options for vacant property in the Glenwood district of Eugene, Oregon. City of Eugene. 1987-88.

Analyzed the likely effects of reopening part of Willamette Street to automobile traffic. City of Eugene. 1987-88.

Led a team of economists and planners studying the economic, demographic, fiscal, and community-service impacts of siting a proposed high-level nuclear waste repository at Hanford, Washington. Impact Assessment Inc. and Washington Department of Ecology. 1987.

Analyzed the socioeconomic characteristics of Atlanta, Idaho, the likely impacts of a proposed open-pit gold-mine near Atlanta, and the dollar value of major costs and benefits. U.S. Forest Service. 1986-87.

Analyzed the fiscal impacts of changes in timber-sale contracts, including the fiscal and economic implications of alternative proposals for offering contractual relief to firms holding contracts for state-owned timber. Oregon Division of State Lands. 1987.

Analyzed the impact of alternative wholesale power rates on irrigated agriculture and developed efficient-rate mechanisms to enhance the viability of this industry. Northwest Irrigation Utilities. 1986-87.

Evaluated the feasibility of constructing an 18-hole, regulation-size golf course on a 210-acre parcel of land, and conducted a market analysis and a financial plan for construction and operation. Lane County, Oregon. 1987.

Prepared baseline employment and income sections for the socioeconomic element of an environmental impact statement for the proposed Chartam gold and silver mine. Private client. 1986-87.

Reviewed the adequacy and accuracy of a sensitivity analysis and an expected-utility analysis of proposed nuclear-waste repositories. Washington State Department of Ecology. 1986-87.

Supervised and managed studies on property in Beaverton and Tigard, Oregon, and identified the current and future needs for residentially related commercial land within the study areas. Cities of Beaverton and Tigard. 1986.

Analyzed the economic effects of proposed changes in the existing Forest Practices Rules for the State of Washington. Washington State Department of Natural Resources. 1986.

Performed a feasibility study for the creation of a 300-seat convention center at a beach resort in Lincoln City, Oregon. Private client. 1986.

Evaluated and proposed zone changes for the City of Troutdale based on an analysis of market conditions, land characteristics, the goals of the comprehensive plan, and the land owners' plans for current and future use of the property. City of Troutdale. 1986.

Analyzed the general economy, recommended strategies for improvement, and prepared a report summarizing the Forest Service's preliminary decision to retain its regional headquarters in Challis. North Custer Resource and Development Committee. 1985-86.

Evaluated cost information on landfills for solid waste to develop a computer model to calculate the economic value of environmental costs that accompany the construction, operation, and decommissioning of a landfill. Oregon Department of Environmental Quality. 1986.

Analyzed factors relevant to the feasibility of a sewage treatment plan. City of Keizer. 1985-86.

Analyzed the service sector in Portland, determined the strengths and weaknesses of a business location relative to other cities, and identified a target list of service-sector industries that would find Portland attractive. Portland Development Commission. 1986.

Provided an economic analysis associated with a proposed up-zoning of a site zoned for a neighborhood shopping center, based on consideration of existing land uses, existing zoning, and the current and expected needs of the community. Private client. 1985-86.

Assisted in the development of a comprehensive land-use plan and the writing of implementing ordinances, including analysis and forecasting of population, housing, employment, and economic development. City of Keizer. 1984-86.

Served as staff to the Citizen's Rate Advisory Committee and prepared the Committee's final report, recommending goals and policies for economic development. Emerald People's Utility District. 1985-86.

Advised the State of Idaho on management of the water resources of the Snake River Basin and the implementation of the Swan Falls Agreement. State of Idaho. 1985.

Evaluated a mixed-use zone in the Whiteaker neighborhood. City of Eugene. 1984-85.

Analyzed and forecasted the tourism market in Pacific Power and Light's service area. Private client. 1985.

Performed a feasibility analysis on the expansion of an existing 18-hole golf course to 27 holes. City of Portland. 1985.

Analyzed and forecasted the demand for column inches of advertising for a metropolitan newspaper, estimating the growth of new households and subscriptions. Private client. 1983-85.

Analyzed three new sources of tax revenues: taxing the gross receipts of parking, wholesale fuel distributors, and automobile sales dealers. Tri-County Metropolitan Transportation District. 1985.

Evaluated the methods used by the U.S. Department of Energy to rank potential sites for nuclear waste repositories. Washington State, Joint Legislative Committee on Science and Technology. 1985.

Analyzed the public uses and private-market demand for county property. Multnomah County. 1984-85.

Analyzed the cost of administering land-use changes and developed a system for setting fees that equitably allocates costs to applicants. Washington County. 1984-85.

Designed and supervised the administration of a survey of fishermen on the Swan River and other drainages to determine the value they place on recreational fishing. Montana Department of Fish, Wildlife, and Parks. 1983-84.

Evaluated the environmental effects from energy development projects, including the value of the external costs and benefits accompanying the development of coal-fired or combustion-turbine power plants. U.S. Department of Energy, Bonneville Power Administration. 1983-84.

Analyzed the economic, legal, and political implications of annexing a large tract of industrially zoned land to a city. City of Troutdale. 1983-84.

Reviewed and critically evaluated an economic analysis of lease rates for submerged and submersible land. Oregon Division of State Lands. 1983-84.

Established rates for future sewer services under a county's long-range capital development plan. Multnomah County. 1983.

Developed a method for evaluating which type of fringe benefits package would be most cost-effective considering both the demographic characteristics of the workforce and the institutional structure of the employer. City of Portland, Oregon. 1983.

Served as staff to the Citizen's Rate Advisory Committee and prepared the Committee's final report on a new rate structure for residential, commercial, and industrial customers. Emerald People's Utility District. 1983.

Evaluated a range of financing techniques to increase the conservation of energy among commercial users. City of Eugene. 1982-83.

Formulated the evaluation program for a HUD-funded grant used to provide low-interest loans to business for energy conservation measures. Lane County Housing Authority and Community Services Agency. 1982-83.

Prepared a financing plan for the Central County Service District and evaluated innovative financing mechanisms for funding the construction of a sewer system for East Multnomah County. Multnomah County. 1982-83.

Designated an economic development strategy for the City of Forest Grove. City of Forest Grove. 1982-83.

Reviewed the financial stability of one of an educational organization's member institutions, projected future revenues and expenditures, and made recommendations about the organization's continued funding of the institution. Private client. 1983.

Calculated the potential fiscal impacts of a proposed state lottery on the earnings of the Oregon Common School Fund. Oregon Division of State Lands. 1983.

Conducted a cost-benefit analysis of management options for mitigating the threat of flooding in the Toutle/Cowlitz watershed, which was damaged by the eruptions of Mt. St. Helens. Cowlitz County Department of Community Development. 1982-83.

Analyzed six prototypical neighborhoods to determine how the market would respond to new commercial zoning regulations. City of Seattle. 1982.

Forecasted the demand for coal in the Pacific Northwest, California, and Pacific Rim Countries, concentrating on the demand for steam and coal by electric utilities throughout the Western United States. Private client. 1980-82.

Analyzed the fiscal and economic impacts of alternative proposals for offering relief to firms holding contracts for state timber. Oregon Land Board. 1982.

Advised the City Manager on the implications of regional energy policies and helped the city develop appropriate responses to the regional policies. City of Eugene. 1981-82.

Analyzed the system of charges imposed on a city by the municipal utility for installing over-sized water mains to ensure adequate water service for fire protection. City of Eugene. 1981-82.

Evaluated policies to protect the water quality of the Rathdrum Prairie Aquifer from septic effluent resulting from indiscriminate development. Panhandle Health District, Kootenai County, Idaho. 1981-82.

Evaluated the past and current applications of economic theory to water resource management in the Columbia River Basin and assessed the effects of such policies on anadromous fish populations. U.S. Department of Energy, Bonneville Power Administration, Northwest Resources Information Center. 1981-82.

Developed socioeconomic criteria to measure direct and indirect benefits of hydroelectric projects. Montana Department of Natural Resources and Conservation. 1981-82.

Developed recommendations for the State of Montana concerning its use of investment funds for in-state economic development. Northern Rockies Action Group. 1981-82.

Predicted the demand for housing in downtown Portland using sources of housing statistics and a statewide econometric model. Portland Development Commission. 1981-82.

Developed a reliable model for predicting future trends in 18 non-wood manufacturing industries. Lane County. 1981.

Identified and evaluated an exhaustive list of methodologies for assessing the environmental costs and benefits of acquisitions. U.S. Department of Energy, Bonneville Power Administration. 1981.

Assessed changes in housing demand and supply for the area and simulated future changes for the period 1980-2000. West University Neighborhood of Eugene. 1981.

Researched and reported on the locational criteria of high-technology firms in the Eugene-Springfield area. City of Eugene. 1981.

Identified the transportation problems in the Vancouver, Washington-Portland, Oregon corridor, isolated their causes, recommended solutions and the institutional and financial arrangements for implementing the solutions. Bi-State Task Force (Cities of Portland and Vancouver, Counties of Multnomah and Clark, Metropolitan Service District, Oregon Department of Transportation, Washington Department of Transportation) and U.S. Department of Transportation. 1980-81.

Wrote the economic element of a draft environmental impact statement, which included assessments of the economic and land-use impacts of a proposed rapid transit system in the western Portland metropolitan area. Metropolitan Service District. 1981.

Described the fiscal impacts of proposed urban development on the county and ten special districts, and analyzed the financing mechanisms available to mitigate those impacts. Washington County. 1981.

Prepared a land-use, fiscal-impact, and feasibility analysis of a proposed light-rail system in Washington County, Oregon (in the Portland SMSA). Washington County, Metropolitan Service District, and U.S. Department of Transportation. 1980.

Developed a five-year fiscal action plan for Multnomah County, Oregon (in the Portland SMSA), including specifying and simulating the major alternative approaches available to the County for facing its fiscal problems. Multnomah County. 1980.

Specified and evaluated alternative programs for encouraging mixed-use districts. City of Eugene. 1980.

Assisted in devising and evaluating alternative policies of airshed management that accommodate anticipated future economic growth. Portland Interstate Air Quality Maintenance Area. 1979-80.

Analyzed the impacts of Montana's CETA program on its participants, developed models of the factors influencing the program's effectiveness, and trained the program's administrators in interpreting the models to improve the program. Montana Governor's Employment and Training Council, with a grant from the U.S. Department of Labor. 1979-80.

Prepared a grant application for a transit mall in Eugene under the Urban Initiatives Program of the U.S. Urban Mass Transit Administration. Lane Transit District, City of Eugene, Oregon. 1980.

Identified and evaluated the locational criteria of the high technology firms based in Santa Clara County, California. Private client. 1980.

Forecasted and evaluated the likely economic consequences of alternative air-quality strategies in the Portland interstate Air Quality Maintenance Area. City of Portland and U.S. Environmental Protection Agency. 1979-80.

Studied the likely increases in storm water run-off that would result from future urbanization and changes in land use in the Eugene-Springfield metropolitan area. U.S. Army Corps of Engineers.

Described and evaluated alternative programs for promoting downtown housing in a sample of four U.S. cities. City of Eugene. 1980.

Prepared a work program for a market analysis of Blair Neighborhood's commercial revitalization. City of Eugene. 1980.

Defined the objectives of the 19 Statewide Planning Goals, identified inconsistencies among them, and described a methodology for specifying and quantifying program objectives in a way which would allow them to be evaluated. Oregon Land Conservation and Development Commission. 1979-80.

Described and evaluated alternative growth-management programs in a sample of nine U.S. cities. City of Eugene. 1979-80.

Prepared a cost-revenue analysis of the acquisition of land surrounding Mahlon Sweet Airport for the purpose of minimizing land-use conflicts with the airport. Mahlon Sweet Airport and City of Eugene. 1979-80.

Developed a short- and long-run evaluative framework for the Oregon Coastal Management Program. Department of Land Conservation and Development. 1979.

Analyzed the potential for a large West-Coast construction firm to secure construction-management contracts for public-sector construction projects, and developed a marketing strategy for the firm. Private client. 1979.

Analyzed the feasibility of a proposed commercial-industrial park. Private client. 1979.

Surveyed and inventoried the commercial and recreational boat launching and moorage facilities in Oregon's estuaries and forecasted the future demand for such facilities. Oregon Department of Land Conservation and Development. 1979.

Analyzed the market for rental and multifamily housing in the central area of Eugene. Eugene Planning Department. 1978-79.

Developed forecasting models of demand for mineral aggregates for Oregon and for the market areas centered in Portland, Lincoln County, the Medford-Ashland metropolitan area, Umatilla County (Pendleton, Umatilla, and Boardman), Deschutes County (Bend), and the Willamette National Forest. Oregon Department of Geology and Mineral Industries and U.S. Army Corps of Engineers. 1978-79.

Analyzed Eugene's economy, with special emphasis on developing an economic management process for implementing the City's economic policies relating to industrial and commercial activity, land use, and the unemployed and economically disadvantaged. City of Eugene. 1978.

Analyzed housing markets, matching and forecasting housing prices and household incomes in the Eugene-Springfield metropolitan area. Private client. 1978.

Prepared a program for revitalizing the downtowns of Spooner and Medford, Wisconsin, as part of the American Institute of Architects' Regional/Urban Design Assistance Team. Wisconsin Northwest Regional Planning Commission and Upper Great Lakes Regional Commission. 1978.

Calculated the effects of the City of Beaverton's building moratorium on homebuilders and households in and around Beaverton, Oregon. Oregon State Homebuilders Association and Portland Metropolitan Homebuilders Association. 1978.

Prepared the economic elements for the comprehensive land-use plans of Lincoln County, Newport, Lincoln City, Toledo, Waldport, Siletz, and Depoe Bay. Lincoln County Planning Department, with a grant from the Oregon Department of Land Conservation and Development. 1978.

Described the nature and location of unemployment in Lane County. Lane Council of Governments. 1978.

Analyzed Eugene's housing markets by type, tenure, and location; and analyzed the underlying supply and demand conditions for residential land in Eugene, Springfield, and the balance of the metropolitan area. City of Eugene. 1978.

Identified the effects of Lane County's land-use and other regulations on the supply and costs of land and housing in Lane County and developed a system for monitoring, evaluating, and controlling these effects. Lane County Planning Division. 1977-78.

Evaluated the effectiveness with which the West Eugene Industrial Area could expect to accommodate future industrial activity, and recommended methods for revitalizing the area and for establishing a vehicle for economic development. City of Eugene. 1977-78.

Assessed the effect of Eugene's Urban Service Boundary and developed a system for monitoring, evaluating, and managing Eugene's growth. Eugene Planning Department. 1976-78.

Analyzed the single-family and multiple-family housing markets in Eugene, Oregon. City of Eugene. 1977.

Prepared a work program and evaluation of the Permit System Improvement Projects in Portland, Salem, Eugene, and the State of Oregon. Oregon Executive Department, with an intergovernmental grant from the U.S. Department of Housing and Urban Development. 1977.

Prepared the economic element for Marion County's Comprehensive Plan. Marion County Planning Department, with a grant from the Oregon Department of Land Conservation and Development. 1976-77.

Evaluated the performance of the employment and training programs for adults in Jackson and Josephine Counties, Oregon. Jackson-Josephine Job Council with a grant under Title I of the Comprehensive Employment and Training Act. 1977.

Developed a process to increase the efficiency of the local labor markets in Gilliam, Grant, Morrow, Umatilla, and Wheeler Counties, and evaluated the performance of the District 12 COG's Employment and Training Program. East Central Oregon Association of Counties, Oregon Employment Division, and U.S. Department of Labor. 1977.

Calculated current and forecasted future employment in Eugene, Springfield, and the balance of the metropolitan area, by sector and location, and analyzed the underlying supply and demand conditions for commercial and industrial land in Eugene. City of Eugene. 1977.

Analyzed the feasibility of the rehabilitation of the old St. Charles Hospital in Bend, Oregon. U.S. Department of Commerce, Economic Development Administration (Project No. 08-06-01776). 1976-77.

Evaluated the performance of the Greater Portland Convention Association and the Portland Chamber of Commerce, Convention Bureau, Portland, Oregon. Greater Portland Convention Association. 1976-77.

Analyzed the impact of zoning on land use in Portland, Oregon and forecasted the demand and supply conditions of industrial land. Portland Bureau of Planning and U.S. Department of Commerce, Economic Development Association. 1976.

Prepared work programs for a study of the economies of Linn, Benton and Lincoln Counties. Planning Departments of Linn, Benton, and Lincoln Counties, Oregon. 1976.

Performed a preliminary feasibility analysis of a residential, office, and retail development in Eugene. Private client. 1976.

Evaluated and reorganized Ashland's Comprehensive Plan; developed evaluative criteria for land-use planning in Ashland, Oregon. City of Ashland. 1976.

Performed a feasibility analysis of a 1200-room convention center in downtown Portland, Oregon. Convention Centers, Inc. 1975-76.

Evaluated the performance of the Youth Work Experience Program in Jackson and Josephine Counties, Oregon. Jackson-Josephine Job Council, with a grant under Title I of the Comprehensive Employment and Training Act. 1975-76.

Evaluated proposed comprehensive plans for the Camp Sherman Area and for Culver City in Jefferson County, Oregon. Planning Department of Jefferson County. 1976.

Analyzed the economic impact of a proposed K-Mart development on the Salem business community. Salem City Council. 1976.

Performed economic impact assessments on: geological hazards; fish and wildlife; beaches and dunes; agriculture, forest, urban; historical and archaeological; continental shelf resources; estuary and wetland resources; visual values; freshwater resources, shoreland resources; and general policies. Oregon Coastal Conservation and Development Commission. 1975.

EXPERT TESTIMONY IN TRIAL

Provided testimony and calculated economic damages to patent holders of alleged patent infringement. Portland, Oregon: Schwabe, Williamson & Wyatt. 2008-2009.

Provided testimony that addressed the costs and benefits of a gasoline formulation that leaked from underground storage tanks and contaminated groundwater. ECO also described the costs and benefits of using an alternative gasoline formulation that did not pose such threats of contamination. New York, New York: New York City Law Department. 2005-2009.

Provided testimony and assessed the accuracy and value of a written document prepared by the plaintiff. Portland, Oregon: Mitchell, Lang & Smith. 2008.

Provided testimony regarding punitive damages in a case involving water contaminated with dry-cleaning chemicals. Sacramento, California: Miller, Axline & Sawyer. 2006.

Provided testimony and calculated the economic damages incurred by a homeowner whose trees were removed without his permission. Eugene, Oregon: Gaydos Churnside & Balthrop PC. 2005-2006.

Provided testimony and calculated the economic damages to a seafood-related business as a result of a license dispute with the State of Washington. Tacoma, Washington: Gordon, Thomas, Honeywell, Malanca, Peterson & Daheim, 2004-2005.

Provided testimony and analyzed the economic damages incurred by citizens of the State of Yap, in the Federated States of Micronesia, from a ship that grounded on the coral reef and spilled oil into the mangrove-reef ecosystem. San Francisco, California: Davis Wright Tremaine. 2003-2005.

Provided testimony and calculated lost wages and benefits in a wrongful discharge claim between a former employee and a hardwood-trading firm. Portland, Oregon: Dunn Carney Allen Higgins Tongue. 2004.

Provided testimony in a NAFTA arbitration matter in which the claimant sought damages arising from the State of California's ban on the use of MTBE as a gasoline oxygenate. Washington, D.C.: U.S. Department of State. 2003-2004.

Provided testimony and evaluated the relevant product and geography for hospital services in Oregon for claims of monopolistic behavior. Portland, Oregon: Schwabe, Williamson & Wyatt. 2002-2003.

Provided telephone testimony and evaluated the U.S. market for suspension systems for bicycles. Portland, Oregon: Schwabe, Williamson & Wyatt. 2002-2003.

Provided testimony for the State of Oregon and analyzed the economic damages to the Oregon coast resulting from an abandoned section of the *New Carissa* shipwreck. Salem, Oregon: Oregon Department of Justice; Eugene, Oregon: Jaqua and Wheatley. 2002.

Provided testimony on, analyzed, and critiqued the defendant's claims of damages in a dispute concerning a rental agreement for city-owned commercial property. Eugene, Oregon: Harrang, Long, Gary, Rudnick. 2002.

Provided testimony and evaluated the economic impacts to municipalities in Alaska of the oil spilled from the Exxon Valdez. Portland, Oregon: Stoll, Stoll, Berne, Lokting, Shlachter. 2000-2002.

Provided economic analysis and testimony for the South Tahoe Public Utility District comparing the costs and benefits associated with using MTBE, ethanol, or alkylates in reformulated gasoline in California. Sacramento, California: Miller, Sher & Sawyer. 1999-2002.

Researched the literature, evaluated the economic basis for antitrust claims in a franchise setting, and provided expert testimony to an arbitration panel evaluating antitrust and tying claims related to the cedar home market. Seattle, Washington: Cutler & Nylander. 2000-2001.

Provided analysis and testimony regarding the economic impacts suffered by an oyster grower as a result of the grounding of the New Carissa. San Francisco, California: Davis Wright Tremaine. 2000-2001.

Provided economic analysis and testimony regarding the economic damages to an irrigator resulting from sewage pollution in the South Umpqua River. Roseburg, Oregon: Dole, Coalwell, Clark, Mountainspring & Mornarich. 1998.

Provided economic analysis and testimony regarding the hiring and pay for head coaches at Oregon State University and calculated economic loss from gender-based hiring. Eugene, Oregon: Walters, Romm, Chanti, & Dickens. 1997.

Provided economic analysis and testimony regarding the lost profits from a patent infringement of an orbital sander by conducting surveys and econometric analysis. Portland, Oregon: Kolisch, Hartwell, Dickinson & McCormack. 1995-1997.

Provided economic analysis and testimony regarding uncompensated expenses and lost profits in a contract dispute between a manufacturer of video lottery terminals and the Oregon State Lottery. Portland, Oregon: Davis, Wright, Tremaine. 1996.

Provided economic analysis and testimony regarding the catalytic converter and recycling industries and calculated damages for the defendant. Eugene, Oregon: Luvaas, Cobb, Richards & Fraser. 1995-1996.

Provided economic testimony regarding antitrust liability and damages related to the wholesale markets for televisions. Portland, Oregon: Schwabe, Williamson, Wyatt. 1995.

Testified regarding damages to a rose nursery from actions by a natural-gas utility. Eugene, Oregon: Luvaas, Cobb, Richards, and Fraser. 1995.

Provided expert testimony regarding economic damages due to antitrust activity in the retail and wholesale markets for petroleum products. Anchorage, Alaska: Condon, Partnow & Sharrock. 1994-1995.

Provided economic analysis of and testimony on issues relating to relevant product and geography, the extent of power in the market for recreation equipment, and damages. Boise, Idaho: Clemons, Cosho and Humphrey. 1988-1992.

Provided testimony regarding whether a property-purchase-leaseback partnership was organized solely to generate reduced taxes, rather than economic profit for the partners. Oregon Department of Justice. 1991.

Provided economic analysis and testimony regarding price discrimination and tied houses in the alcoholic beverage industry. Portland, Oregon: Schwabe, Williamson, Wyatt, Moore, and Roberts. 1987-1988.

Provided analysis and testimony on the value of eight properties of real estate. Portland, Oregon: Hanna, Urbrikeit, Jensen, Goyak, and O'Connell. 1987-1988.

Provided analysis and testimony regarding the damages associated with alleged patent infringement. Portland, Oregon: Schwabe, Williamson, Wyatt, Moore, and Roberts. 1987.

Provided regulatory policy analysis and testimony regarding irrigation rate-discounts and the adverse economic impact of higher electrical rates. Private client. 1987.

Provided analysis and testimony regarding the economy of Lincoln County for the years 1970-1986, with special emphasis on the variables of non-agricultural wage and salary employment, covered payrolls, restaurant and hotel payrolls, and total assessed true cash value. Lincoln City, Oregon: Lovejoy and Green. 1987.

Provided economic analysis and testimony regarding the economy of Oregon and the auto industry in the early 1980s. Eugene, Oregon: Swanson and Walters. 1987.

Provided economic analysis and testimony for a private utility regarding economic principles for efficient pricing of electricity sold to regulated utilities by independent producers. Boise, Idaho: Runft, Leroy, Stecher, Coffin, and Mathews. 1985-1986.

Provided economic analysis and testimony regarding a newspaper's alleged violation of antitrust laws with respect to the market for local printed advertising. Portland, Oregon: Gordon, Thomas, Honeywell, Malanca, Peterson, and Daheim. 1985.

Testified in a franchise dispute for Richard Fredricks, owner of Subaru, in Multnomah County Circuit Court. Palm Desert, California: Richard Houghton. 1983.

Also testified in personal-injury and wrongful-death cases.

OTHER EXPERT ANALYSIS FOR LITIGATION

Analyzed alleged anticompetitive behavior, if any, in the market for diagnostic imaging services in the Reno area. Reno, Nevada: Robison, Belaustegui, Sharp & Low. 2009.

Evaluated DNR's decision not to quantify monetary values associated with Blanchard forest. Seattle, Washington: Toby Thaler. 2008-ongoing.

Analyzed economic factors relevant to setting market-rate royalties associated with an aggregate mine. Portland, Oregon: Stoel Rives LLP. 2007-ongoing.

Evaluated damages to the County associated with loss of use of contaminated property. Chicago, Illinois. Bollinger, Ruberry & Garvey. 2007-2009.

Analyzed a construction company's ability to pay civil penalties associated with alleged violations of air-quality regulations. Sacramento, California: California Attorney General. 2007-2008

Portland, Oregon: Foster Pepper LLP. 2007-2008.

Studied the market for MRI services in the Boise area and assessed alleged anticompetitive behavior in this market. Boise, Idaho: Greener, Banducci, Shoemaker. 2006-ongoing.

Analyzed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots in the Boise, Idaho area. Seattle, Washington: Hagens Berman Sobol Shapiro LLP. 2006-ongoing.

Analyzed the fuel ethanol market to determine if refiners could have used ethanol instead of MTBE to meet federal reformulated-gasoline mandates during the 1990s. San Francisco, California: Sher Leff; et al. 2005-ongoing.

Calculated the economic damages suffered by a private water utility from MTBE contamination in its drinking-water wells. San Francisco, California: Sher Leff. Dallas, Texas: Baron & Budd. 2006-2008.

Calculated present value of economic damages to Hawaiian water utility from contaminated groundwater. San Francisco, California: Sher Leff, LLP. 2007.

Analyzed the operations and financial performance of a timber company's cogeneration facilities. Calculated the profits earned by the company as a result of unfair competition stemming from violations of air-quality regulations. Sacramento, California: Office of the Attorney General, State of California. 2005-2007.

Analyzed the market for diagnostic-imaging services in the Portland-metro area. Portland, Oregon: Haglund, Kirtley, Kelley, Horngren & Jones. 2005-2006.

Calculated the economic loss associated with lost wages, lost household services, and additional costs caused by the wrongful death of a mother. Private client. 2005-2006

Addressed the economic issues regarding the plaintiffs' challenge to a city's franchise-fee agreements for use of the city-owned right-of-way. Portland, Oregon: City Attorney's Office. 2005-2006.

Provided a declaration in support of the fee that a city charges to access the municipal right-of-way. Portland, Oregon: City Attorney's Office. 2004-2005.

Analyzed the potential violation of trade secrets. Portland, Oregon: Schwabe, Williamson & Wyatt. 2005-2006.

Calculated the economic loss related to several wrongful deaths and injuries, suffered primarily by college students. Portland, Oregon: Private client. 2005.

Performed statistical analysis to identify members of a proposed class of plaintiffs and the amount of the aggregate class damages from the failure of an insurance company to compensate policyholders for the actual cash value of the sales tax paid on lost property. Seattle, Washington: Stritmatter Kessler Whelan Withey Coluccio. 2005.

Reviewed and critiqued the opposing expert's analysis in a wrongful discharge case. Portland, Oregon: Mersereau & Shannon. 2004-2005.

Studied the economic performance of the ski industry in the Lake Tahoe area and the market conditions that affect this sector of the region's economy. California: California Office of the Attorney General. 2003-2005.

Reviewed economic analyses, prepared by the U.S. Department of Agriculture and the U.S. Environmental Protection Agency, of the potential economic impacts of court-ordered restrictions on the use of pesticides near salmon-bearing streams in the Pacific Northwest. Seattle, Washington: Earthjustice. 2004.

Provided a declaration of opinion concerning the adequacy of financial information. Seattle, Washington: Bricklin Newman Dold. 2004.

Reviewed economic issues specific to the Telecommunications Act of 1996 regarding the fees that the City of Huntsville charges telecommunications firms to use its right-of-way. Huntsville, Alabama: Fees & Burgess. 2003.

Analyzed the economic damage to homeowners in Idaho due to hazardous waste pollution from mining and mineral processing activities. Seattle, Washington: Hagens & Berman. 2002-2004.

Studied allegations of price-fixing in markets for agricultural commodities. Portland, Oregon: Tonkon Torp. 1997-2004.

Analyzed the royalty rate that the holders of a process patent could expect to receive in a licensing arrangement. Portland, Oregon: Schwabe, Williamson & Wyatt. 2002-2004.

Evaluated right-of-way fees that a telecommunications company challenged in litigation in reference to certain provisions of the Telecommunications Act of 1996. Washington, D.C.: Miller & Van Eaton. 2002-2004.

Provided analysis regarding the economic impacts of a proposed aggregate mining operation on surrounding farms. Portland, Oregon: Garvey Schubert Barer. 2004.

Studied the economic aspects of defining a hospital's service area as it applied to Oregon's Certificate-of-Need requirement for new or relocated hospitals. Private client. 2003.

Analyzed the fees that a city charged a telecommunications company to access the city-owned right-of-way. San Diego, California: Best Best & Krieger. 2003.

Evaluated the pricing structure that local governments charge providers of cable modem services for using the local right-of-way and addressed the economic relevance of revenue-based fees in a congested right-of-way. Washington, D.C.: Miller & Van Eaton. 2002-2003.

Analyzed the statistical differences between groups of employment-related injury settlements. Seattle, Washington: Hagens & Berman. 2002-2004.

Studies the market for home intravenous care in preparation for a possible antitrust lawsuit. Private client. 2002.

Provided economic consultation on the market for health-care services in Oregon. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2000-2002.

Provided economic analysis regarding the economic value of municipal rights-of-way and the use of the rights-of-way by telecommunications companies. Portland, Oregon: City of Portland Attorney's Office. 2001-2002.

Provided economic analysis of a patent-infringement claim regarding suspension systems for bicycles. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2001-2002.

Evaluated the relevant product and relevant geography for hospital services in Oregon and analyzed economic damage claims. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2000-2002.

Provided an economic analysis of the U.S. market for cookie stamps. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2001.

Assessed the economic impacts of restricting a forest clearcut in the Carbon River Corridor Entrance to Mount Rainier National Park. Seattle, Washington: Washington Forest Law Center. 2000-2001.

Calculated the costs of a potential fuel spill at the mouth of the Columbia River. Portland, Oregon: Haglund, Kirtley, Kelley & Horngren. 2000-2001.

Determined the appropriate sample size required to confirm key characteristics about CEC's phone pole population. Bend, Oregon: Karnopp, Petersen, Noteboom, Hansen, Arnett & Sayeg. 2000.

Evaluated the likely effects of certain labor practices on the working conditions of workers in the reforestation industry. Eugene, Oregon: Oregon Law Center. 1999-2001.

Assessed the socioeconomic impacts of a proposed petroleum-products pipeline across central Texas. Private client. 1999-2001.

Analyzed the economic impacts of unauthorized construction activity that damaged a pueblo in New Mexico. Private client. 1999-2000.

Studied the economic status of bands of Native Americans. Private client. 1999.

Determined the damages caused by two competitors who infringed on a patent for an invention used in the alarm and security industry. Portland, Oregon: Stoel Rives LLP. 1999.

Evaluated the economic impacts of the proposed Cross-Cascade Pipeline on businesses, grain producers, and consumers. Portland, Oregon: Schwabe, Williamson & Wyatt. 1999.

Calculated the damages in an employment discrimination suit. Portland, Oregon: Gordon Thomas Honeywell. 1998.

Studied factors associated with teen smoking, including price elasticities, research and development expenditures by tobacco companies, and profits generated from cigarette consumption by underaged smokers. Hagens & Berman (Washington and Arizona) and Golub Silver (Connecticut). 1997-1998.

Calculated damages to commercial fishermen, seafood wholesalers/processors, hotels, and small businesses associated with a 1990 oil spill off Huntington Beach, California. Los Angeles, California: Gretchen Nelson. 1997-2000

Analyzed economic loss suffered as a result of injury. Jamin, Ebell, Schmitt, & Mason. 1997-1998.

Evaluated unfair trade practices in the market for computer software. Eugene, Oregon: Butler, Burgott, Leslie & Stine. 1997-1998.

Calculated economic damages for a class action law suit against an insurance company that retroactively denied coverage to accident victims many months after they had received costly treatment. Seattle, Washington: Hagens & Berman. 1996-1997.

Calculated economic damages resulting from a breach of the 1991 Manufacturing Agreement and misappropriation of intellectual property, trade secrets, and manufacturing tooling of VSI crusher parts. Portland, Oregon: Schwabe, Williamson & Wyatt. 1995-1997.

Analyzed the economic well-being of seven bands of Chippewa in Minnesota and Wisconsin. Minnesota Attorney General's Office and Department of Natural Resources. 1995-1997.

Analyzed lost profits resulting from the improper implementation of a new area code by conducting a telephone survey of affected firms. Seattle, Washington: Hagens and Berman. 1996.

Developed and administered a survey of auto parts salespersons to calculate hours of uncompensated overtime and the value of lost wages. Eugene, Oregon: Hoag, Garrettson, Goldberg & Fenrich. 1995-1997.

Analyzed the relevant product and geographic markets for video superstores. Portland, Oregon: Davis, Wright, Tremaine. 1995-1996.

Analyzed the economic costs and benefits of differential tax treatment between in-state and out-of-state insurance companies by the State of Oregon. Eugene, Oregon: Harrang Long. 1995.

Analyzed emissions of CO₂, mercury, fine particles, and other air contaminants associated with electricity generation. Chicago, Illinois. Environmental Law and Policy Center. 1995.

Identified the relevant geographic market for retail electronics for the 1970s and 1980s in Oregon. Portland, Oregon: Tonkon, Torp, Galen, Marmaduke & Booth. 1995.

Described the relevant product market for lumber mill equipment in the U.S. and Canada, Portland, Oregon: Kolisch, Hartwell, Dickinson, McCormack & Heuser. 1994-95.

Addressed the shortcomings of the economic analysis in the Spotted Owl Final Supplemental Environmental Impact Statement and the economic consequences of adopting a forest management plan based on an incomplete and inaccurate economic analysis. Seattle, Washington: Sierra Club Legal Defense Fund. 1994.

Provided expert analysis on class certification and economic damages for businesses and property owners affected by airborne toxic pollutants. Seattle, Washington: Riddell, Williams, Bullitt & Walkinshaw. 1993-1995.

Provided expert analysis regarding the value of damages to municipalities suffered as a result of the Exxon Valdez oil spill and cleanup. Kodiak, Alaska: Jamin, Ebell, Bolger & Gentry. 1990-94.

Provided expert testimony on class certification and conducted economic analyses for area businesses and property owners affected by a toxic spill in the Sacramento River. San Francisco, California: Lieff, Cabraser & Heimann. 1992-94.

Analyzed the economic impacts of a chemical spill on municipal governments. Private client. 1993

Provided expert analysis related to class certification and damages to property values from airport noise. Seattle, Washington: Hagens and Berman. 1992-1993.

Constructed a hedonic price model of the market for vacant commercial and industrial land in King County, Washington. Seattle, Washington: Betts, Patterson & Mines. 1992-93.

Analyzed the market for group dental insurance in Oregon and evaluated claims of antitrust liabilities and damages. Portland, Oregon: Schwabe Williamson. 1992-93.

Provided economic analysis of issues relating to relevant product market and relevant geographic market for neonatal-prenatal medicine. Eugene, Oregon: Calkins and Calkins. 1989-92.

Assessed the extent to which the Bureau of Land Management failed to satisfy the economic requirements for an exemption to the Endangered Species Act in its proposal to log timber in habitat for the northern spotted owl. Portland, Oregon: U.S. Fish and Wildlife Service. 1991-92.

Determined the extent to which the behavior of an association of river pilots operating under the provisions of an association of a state regulatory authority constituted an antitrust violation. Portland, Oregon: Haglund and Kirtley. 1991-92.

Evaluated and recommended actions for improving the analysis underlying Washington's system for determining child-support payments. Seattle, Washington: Betts, Patterson & Mines. 1991.

Provided expert analysis regarding the economic impacts of certain injunctions on U.S. Forest Service timber sales in Washington, Oregon, and northern California. Seattle, Washington: Sierra Club Legal Defense Fund. 1991.

Assessed the feasibility of a public agency's plan to condemn property and construct a hotel, thereby displacing planned private-sector development of a smaller hotel on the same site. Portland, Oregon: Pfister and Tripp. 1991.

Valued damages resulting from patent infringement by a competitor of a manufacturer of agricultural equipment who also made and sold similar, non-infringing equipment. Portland, Oregon: Schwabe, Williamson and Wyatt. 1991.

Analyzed the demand for recreational fishing in the Flathead Lake region in a dispute over the state's authority to regulate fish and game on an Indian reservation. Helena, Montana: Montana Attorney General's Office. 1990.

Provided economic analysis, with specific emphasis on the issues of relevant market, barriers to entry, and competition, of the market for maraschino cherries. Portland, Oregon: Tonkon, Torp, Galen, Marmaduke & Booth. 1990.

Described the importance of the apple industry to Chelan County, Washington and assessed the likelihood that randomly selected jurors would have a direct or indirect financial interest in the apple industry. Hoquiam, Washington: Stritmatter, Kessler and McCauley. 1989.

Provided economic analysis of the savings proposed by a private corporation to the Defense Logistics Agency. Boise, Idaho: Runft, Leroy, Coffin, and Mathews. 1985-1988.

Provided economic analysis regarding claims that a natural gas pipeline corporation violated antitrust laws in its interpretation and application of pipeline deregulation rules of the Federal Energy Regulatory Commission. Salt Lake City, Utah: Watkiss & Campbell. 1988.

Provided economic analysis regarding a claim by a roller-bearing manufacturer that a rock-crusher manufacturer violated antitrust laws by attempting to restrict after market sales of replacement roller bearings to crusher users. Pittsburgh, Pennsylvania: Springer, Bush, & Perry. 1988.

Provided economic analysis regarding a claim that the sale of television rights for professional bowling violated antitrust laws. Seattle, Washington: Hansen, Robinett & Krider. 1988.

Analyzed the economic impacts of a hostile takeover of Farmers Insurance by the British American Tobacco Company. Portland, Oregon: Lindsay, Hart, Neil, & Weigler. 1988.

Provided economic analysis for a school board during labor negotiations. Eugene, Oregon: 4J School District. 1987.

Reviewed the plaintiffs' appraisal of damages resulting from breach of contract for appropriateness of method and amount. Bend, Oregon: McCord & Haslinger, 1986.

Analyzed the present discounted value of damages incurred by a private corporation under an alleged restrictive settlement. Eugene, Oregon: Perrin, Gartland & Doyle. 1984-86.

Provided economic analysis regarding a claim that a manufacturer of Mexican coffee liqueurs exercised monopoly power to exclude or restrict competition in the market. Schwabe, Williamson, Wyatt, Moore & Roberts. 1985-86.

Provided economic analysis of the present discounted value of alleged damages sustained by Chrysler Corporation resulting from the action of two franchises. Seattle, Washington: Betts, Patterson, and Mines. 1986.

Assisted in labor arbitration with corrections officers. Multnomah County. 1985-86.

Provided economic analysis regarding an alleged restraint of trade for the sale and transportation of fly ash. Stoel, Rives, Boley, Fraser & Wyse. 1985-86.

Provided economic analysis regarding real estate markets and financial conditions in Ada County and the City of Boise. Boise, Idaho: Clemons, Cosho, and Humphrey. 1985.

Assessed the impact of the City of Ketchum's annexation of the Northwood Subdivision on the Ketchum Springs Water Supply Company's revenues, rate base, capital structure, customers, and stockholders. Private client. 1984-85.

Provided economic analysis regarding a claim that a video-game manufacturer violated antitrust laws with respect to the distributorship of video games. Seattle, Washington: Betts, Patterson, and Mines. 1985.

Analyzed the disparities between procedures for determining taxable value for residential properties and those for commercial and industrial properties. Montana Department of Revenue. 1983-84.

Provided economic analysis regarding a claim that the members of a medical clinic violated antitrust laws by using the peer-review process to restrict a competing surgeon's hospital privileges. Astoria, Oregon: Tonkon, Torp, Galen, Marmaduke & Booth. 1984.

Provided economic analysis and calculation of damages regarding a newspaper's alleged violation of antitrust laws with respect to the market for local printed advertising. Boise, Idaho: Risch, Goss, Insinger, and Sallady. 1984.

Provided a condemnation appraisal. Oregon Department of Justice. 1984.

Provided analysis regarding damages from the loss of a lease and additional travel costs when the defendant failed to vacate a space as promised. King County, Washington: Betts, Patterson, and Mines. 1984.

Provided business valuation for John McInnis and Rhodes Big O Tires, Inc. Mountain Home, Idaho: Hall & Friendly and McMurtrey & Company. 1984.

Provided business valuation representing Robert Hammons & Associates in U.S. District Court. Idaho: Stephen, Slavin, Kvanvig & Stephan. 1983.

OTHER EXPERT TESTIMONY

Testified at a hearing and provided written testimony describing the economic consequences of increasing market concentration in the market for acute-care hospital services. Springfield, Oregon: Thorp Purdy Jewett Urness & Wilkinson. 2005.

Testified at a hearing before Polk County's (Oregon) Board of Commissioners regarding the economic benefits of protecting the quality of a community's groundwater resources. Hillsboro, Oregon: David Noren, Attorney at Law. 2004-2005.

Testified at a hearing before Oregon's Attorney General regarding the proposed merger of McKenzie-Willamette Hospital and Triad Corporation. Springfield, Oregon: Thorp Purdy Jewett Urness & Wilkinson. 2003.

Presented oral testimony (via telephone) to the Oregon Senate Economic and Job Stimulus Committee regarding an overview of Oregon's economy. 2001.

Prepared a declaration on the economic issues of critical habitat designation for endangered salmon. Seattle, Washington: Earthjustice Legal Defense Fund. 2001-2002.

Provided economic analysis and testimony regarding the economic impacts of a proposed sand-and-gravel mine on surrounding farms. Private client. 2000-2002.

Evaluated the economic impacts of bypassing four federal dams on the Lower Snake River, developed a plan to mitigate the negative consequences of the bypass, and testified on these topics in a joint hearing before the House Subcommittee on Fisheries Conservation, Wildlife and Oceans, and the Subcommittee on Water and Power. Portland, Oregon: Trout Unlimited and Earthjustice Legal Defense Fund. 1999.

Testified before the Washington Shorelines Hearing Board regarding how locating a large retail shopping center on industrial land would affect neighboring industrial uses. Seattle, Washington: David C. Hall. 1996.

Provided oral testimony at an antitrust immunity hearing regarding a petition seeking antitrust immunity for a proposal to integrate healthcare providers. Vancouver, Washington: Reed McClure. 1995.

Testified before the Portland City Council regarding the proposed location of a Costco retail store in the Industrial Sanctuary of Portland, Oregon. Portland, Oregon: Kell, Alterman. 1995.

Testified on the economic impacts of proposed reforms to the Mining Law of 1872 before U.S. Senate Subcommittee on Forests and Public Land Management, Committee on Energy and Natural Resources. Washington, D.C.: Mineral Policy Center. 1995.

Testified regarding the Southeast Alaska Jobs and Communities Protection Act of 1995 before the U.S. Senate Committee on Energy and Natural Resources. Washington, D.C.: Sierra Club Legal Defense Fund and Alaska Rainforest Campaign. 1995.

Testified on the impacts of reduced timber harvest in the Tongass National Forest on the economy of southeast. Anchorage, Alaska: Alaska Sierra Club Legal Defense Fund. 1994-1995.

Testified before the New Mexico Horizons Task Force on strategic thinking in Oregon and Utah. Santa Fe, New Mexico. 1994.

Testified before the U.S. House of Representatives Committee on Natural Resources on the changing needs of the West. Salt Lake City, Utah. 1994.

Testified on the northern spotted owl and the timber industry in the Pacific Northwest before the U.S. Senate Committee on Environment and Public Works, Subcommittee on Environmental Protection. Washington, D.C.: U.S. Senate Committee on Environment and

Public Works. 1992. Provided analysis and testimony to the Oregon State Legislative Joint Committee on Forest Products and developed a strategic plan for allocating state resources to assist dislocated workers and timber-dependent communities. Salem, Oregon. 1990.

Provided analysis and testimony to the Oregon Legislature regarding a proposal to implement comprehensive effluent fees for air pollution. Salem, Oregon: Oregon Environmental Council. 1990.

Testified before the U.S. House of Representatives Subcommittee on Regulation and Small Business Opportunities regarding the viability of flexible manufacturing networks. Washington, DC: U.S. House of Representatives Committee on Small Business. 1988.

Testified before the Portland City Council regarding the proposed location of a Fred Meyer shopping center. Portland, Oregon: Sullivan, Josselson, Roberts, Johnson & Kloos. 1985-86.

Testified before the Idaho Public Utility Commission regarding appropriate methodologies for deregulating the electricity-generating industry and for determining the fair-market value of electricity produced by cogenerators and small power producers. Boise, Idaho: Lindsay, Hart, Neil & Weigler. 1985.

Determined the competitive wages necessary to attract and retain police and firefighters, and testified at arbitration hearings between the City of Portland and the Public Employees' Union. Portland, Oregon: City of Portland. 1984-85.

Provided regulatory policy analysis representing Hy-Tech Corporation in a rate hearing before the Idaho Public Utility Commission. Boise, Idaho: Runft, Leroy, Coffin & Mathews. 1984.

STATE, REGIONAL, AND NATIONAL PRESENTATIONS AND CONFERENCES

"Economic Growth, the Environment and Sustainability." Remarks to the Oregon House Committee on Sustainability and Economic Development. January 2009.

"The Societal Costs and Benefits of Misallocating Water and Gasoline Additives." Universities Council on Water Resources Conference. July 2004.

"The Economic Importance of Ecosystem Services." Universities Council on Water Resources Conference. July 2004.

"The Economic Importance of Ecosystem Services." AWRA Summer Specialty Conference. June 2004.

"The Societal Costs and Benefits of MTBE as a Gasoline Additive in California." Presenter, NGWA Conference on MTBE, Assessment, Remediation, and Public Policy. June 2003.

"Paying Mother Nature." Speaker, 2003 American Planning Association National Planning Conference. Denver, Colorado. April 2003.

"The Economics of Dam Removal on the Lower Snake River." Presenter, Economic Value of Environmental Resources Conference. Chico, California. April 2003.

"Challenges to Economic Security." Panelist, Pacific Northwest Regional Economic Conference. Portland, Oregon. May 2002.

"Economic Valuation and the Watershed." Speaker, Watershed Partnerships Seminar. U.S. Office of Personnel Management, Western Management Development Center. Denver,

Colorado. September, June, and March 2001, November and July 2000, November and March 1999, and October and June 1998.

"Economic Alternatives in the Willamette River Basin." Keynote speaker, Willamette River Watershed Conference. Sponsored by: Oregon Chapters of the American Institute and American Water Resources Association. Vancouver, Washington. April 2001.

"Economics, Salmon and the Pacific Northwest." Coordinator and presenter, Salmon/Water Workshop. Participants: ECONorthwest, Earthjustice, American Rivers, The Center for Environmental Law & Policy, Trout Unlimited, and Columbia River Inter-Tribal Fish Commission. Portland, Oregon. March 2001.

"Competition Matters: An Economist's Perspective of Collaborations and the National Forests." Speaker, University of Montana School of Forestry, Plum Creek Lectures. January 2001.

"The New West: Changing Demographics, Economics, and Perceptions." Speaker, Washington State Trust Lands Conference. Seattle, Washington. November 2000.

"Economic Benefits of Parks and Recreation." Speaker, 2000 Oregon Recreation & Park Association Annual Conference. Welches, Oregon. October 2000.

"Hidden and Ignored Economic Costs in Natural Resource Decision Making." Speaker, NEPA/ESA Conference 2000. Austin, Texas. September 2000.

"Regional Economic Impact Analysis." Speaker/Facilitator, Workshop on Estimating the Economic Values and Impacts of Water-Resources Projects in the Mississippi River Basin. Memphis, Tennessee. September 2000.

"Application of Economic and Related Policy Information to Prioritize Riparian Restoration of the Willamette River, Oregon." Speaker, AWRA International Conference on Riparian Ecology and Management in Multi-Land Use Watersheds. Portland, Oregon. August 2000.

"Both Sides of the River: Salmon Recovery in the Columbia Basin." Panel participant, Searching for a Preferred Alternative. Eastern Washington University. Spokane, Washington. June 2000.

"The Challenge of Healthy Communities," Keynote speaker, EPA Region 10 (Alaska, Washington, Oregon, Idaho) Office of Ecosystems and Communities. Seattle, Washington. May 2000

"Beyond 2000: Regional, Border, and Global Issues for the Pacific Northwest." Panel participant, Protection of Salmon and Other Environmental Issues. Western Washington University: Pacific Northwest Regional Economic Conference. Bellingham, Washington. April 2000.

"The Economic Consequences of Watershed Management: Values, Impacts, and Equity." Speaker, Second Annual Wetland Workshop. U.S. Bureau of Reclamation, Great Plains Region. Estes Park, Colorado. October 1999.

"Benefits and Mechanisms for Spreading Asset Ownership in the United States." Invited participant, The Ford Foundation Conference. New York, New York. May 1999.

"Economic Changes in the Pacific Northwest." Panel participant, Pacific Northwest Conference on Environmental and Resource Economics. Eugene, Oregon. May 1999.

"The Economic Consequences of Watershed Management: Values, Impacts, and Equity." Sustaining the Missouri River for Future Generations. Pierre, South Dakota. March 1999.

"The Ecosystem-Economy Relationship: Insights from Six Forested LTER Sites." Speaker, LTER Conference on Linking Natural and Socioeconomic Processes. Madison, Wisconsin. October 1998.

"Making Decisions When Everything Matters." Speaker, National Wilderness Conference. Seattle, Washington. May 1998.

"Designing a Report Card on the Health of the Nation's Ecosystems." Panelist, The H. John Heinz III Center for Science, Economics and the Environment. Washington, D.C. February 1998.

"Making Decisions When Everything Matters." Speaker, Oregon Chapter American Fisheries Society Annual Meeting. Population, Economics, and Ecosystems: Is Sustainability Attainable? Sunriver, Oregon. February 1998.

Participant, EPA/NSF Partnership for Environmental Research: Water and Watersheds STAR Grants Program Review Meeting. Corvallis, Oregon. January 1998.

"The Effects of Measure 47." Speaker, Oregon Speech-Language and Hearing Association's Fall Conference. Bend, Oregon. October 1997.

"How Can Researchers and the EPA Work Together to Improve Benefit/Cost Analysis?" Speaker, EPA Deputy Administrator's Environmental Economics Forum. Cambridge, Massachusetts. September 1997.

"The Economic Effects of Ecosystem Management." Paper presented at the Western Economic Association International Conference. Seattle, Washington. July 1997.

"Tracing the Economic Roots of Wetlands Restoration." Presenter, Pacific Northwest Chapter of Wetland Scientists and Society for Ecological Restoration. Corvallis, Oregon. May 1997.

"The Pacific Northwest Economy: Transitions from Brown to Green." Panel moderator, Pacific Northwest Regional Economic Conference. Spokane, Washington. April 1997.

Speaker, Oregon Department of Environmental Quality's Orphan Site Task Force. Portland, Oregon. January 1996.

"The Evolution of the Pacific Northwest's Regional Economy." Speaker, Carroll College. Helena, Montana. January 1996.

"Making Decisions When Everything Matters." Speaker, Washington Department of Ecology Director's Choice Forum. Seattle, Washington. September 1995.

"Marketing of Indian Water Rights." Speaker, Western States Water Council's Symposium on the Settlement of Indian Water Rights' Claims. Portland, Oregon. September 1995.

"Making Use of Experts When Litigating Disasters." Oregon Bar Association's 1995 Annual Meeting. Litigating Environmental Disasters: Lessons Learned Litigating the Exxon Valdez Oil Spill Case. Seaside, Oregon. September 1995.

"The Changing Northwest Economy." Speaker, Pacific Rivers Council Northwest Economic Conference. July 1995.

Invited Speaker, President Clinton's Pacific Rim Regional Economic Conference. Little Rock, Arkansas. June 1995.

"Incentives and Subsidies: Water and Energy Use in the Columbia Basin." Speaker, Northwest Water Law and Policy Project on Water Policy and Sustainability in the Columbia River Basin. Lewis and Clark Law School. May 19, 1995.

"The Two Oregons Debate: Timber vs. High-Tech." Speaker, City Club of Portland. Portland, Oregon. April 14, 1995.

"Creating Community for Quality Education." Speaker, Confederation of Oregon School Administrators. Portland, Oregon. March 6, 1995.

"Economic Forecast for 1995." Speaker, City Club of Portland. Portland, Oregon. January 6, 1995.

"Northwest Environmental Economics." Speaker, Oregon Chapter of the American Society of Landscape Architects; USDA Forest Service, Mt. Hood National Forest Landscape Architects; and University of Oregon, Landscape Architecture Department's Conference on Sustainable Future. Beaverton, Oregon. October 28, 1994.

"Managing the Northern Forests: Other Lessons from the West." Panelist, Vermont Law School's Symposium on the Northern Forest Lands and the Law. South Royalton, Vermont. September 30, 1994.

"The Use of Economic Information in Decisionmaking and Economic Benefits of Spotted Owl Rules." Speaker, Washington Department of Natural Resources, Forest Practices Board Meeting. Olympia, Washington. September 13, 1994.

"Strategic Thinking in Oregon and Utah." Speaker, Meeting of the New Mexico Horizons Task Force. Santa Fe, New Mexico. August 25, 1994.

"Economics and Livability of Cities." Speaker, Washington State Department of Community, Trade and Economic Development, Downtown Revitalization Program Meeting. Kent, Washington. August 5, 1994.

"Environmental Economics." Speaker, Sierra Club Legal Defense Fund Annual Meeting. Chico Hot Springs, Montana. May 24-28, 1994.

"Cycles & Trends: It's All a Matter of Timing." Speaker, 1994 Construction Industry Conference. Portland, Oregon. May 20, 1994.

"Contemporary Issues in Externalities." Speaker, NARUC-DOE Fifth National Conference on Integrated Resource Planning. Kalispell, Montana. May 15-18, 1994.

"The College Student and the Economy." Speaker, Pacific Northwest Association of College Admissions Counselors. Portland, Oregon. April 22, 1994.

"Oregon's Economy: The Recent Past and Projections for the Future." Keynote Speaker, Oregon State System of Higher Education's Counselor Conference. Eugene, Oregon. October 15, 1993.

"How Do We Value Biodiversity in Ecosystems?" Speaker, Forest Products Research Conference. U.S. Forest Service. Madison, Wisconsin. September 28, 1993.

"The Need for Sustainable Development and NW Regional Cooperation." Introduction, Pacific Northwest Sustainable Development Convenors Forum. Portland, Oregon. September 13, 1993.

"Role of Strategic Planning in Framing Performance Measures and Accountability." Speaker, City of Seattle Mayor's Retreat. Seattle, Washington. August 19, 1993.

"Meeting the Challenge: The Economic Benefits of Wildlife." Speaker, Oregon Department of Fish and Wildlife's 100th Anniversary Celebration. Portland, Oregon. July 23, 1993.

"Oregon's Real Economy." Keynote Speaker, Oregon Downtown Development Association Annual Conference. June 11, 1993.

"Social Considerations of High Quality Forestry." Keynote Speaker, Workshop on High Quality Forestry. U.S. Forest Service, Pacific Northwest Research Station. May 11, 1993.

"The Effect of Taxes on Oregon's Economy." Oregon State Legislature, Joint Interim Committee on Revenue and School Finance. September 16, 1992.

"Trojan Shutdown or Phasedown: Who Pays?" Portland City Club. Portland, Oregon. August 21, 1992.

"Environmental Externalities and Utilities." Northwest Power Planning Council Work Session. June 24, 1992.

"Washington's Changing Economy: The Challenge for Future Regulation." Washington State Bar Association's Environmental and Land Use Law Section Seminar. May 29, 1992.

"Economic Forecast." District 10 Pacific Northwest Council Credit Professionals International Credit Association, 1992 Credit Conference. Portland, Oregon. May 19, 1992.

"The Economic Myths and Realities of Timber and Owls." Eugene City Club. Eugene, Oregon. March 1992.

"Economy of the Eugene-Springfield Area and How It May Influence Real Estate Values." Eugene Association of Realtors. Eugene, Oregon. March 1992.

"The Economics of the God Squad Hearings: How Will It Affect Oregonians?" League of Women Voters. Eugene, Oregon. February 1992.

"The Current Economic Issues Associated with Oregon's Natural Resources." City Club of Portland. Portland, Oregon. February 1992.

"The Oregon Economy: What's Going On and What's Going to Go On." Dinner speaker, Oregon Editorial Writers Conference. Eugene, Oregon. October 1991.

"The Economics of Water Resource Management." Western Regional Conference, National Association of State Budget Officers (NASBO). Seattle, Washington. August 1991.

"The Economy and Oregon's Public Schools." Oregon Association of School Business Officials (OASBO) 1991 Summer Conference. Bend, Oregon. July 1991.

"Achieving a Predictable Timber Supply and Community Stability While Protecting Forest Ecosystems." Briefing for Congressional and Governors' Staff of Oregon and Washington. Vancouver, Washington. May-June 1991.

"New Perspectives and the Forest Service: A New Way of Thinking." Portland Metropolitan Chamber of Commerce. Portland, Oregon. May 1991.

"Reversal of Fortune: The Economics of New Perspectives." Keynote Speaker, Western Forest Economists Conference. Portland, Oregon. May 1991.

"New Perspectives and the Forest Service." Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1991.

"Economics of Pollution and Clean-Up: What Price to Society Today and Tomorrow?" Water Quality, Water Quantity: The Reluctant Marriage Conference. Northwestern School of Law of Lewis and Clark College and WaterWatch of Oregon, Inc. February 1991.

"New Perspectives University Colloquium Coordination Workshop." U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station. Denver, Colorado. January 1991.

"The Northwest Economy." Oregon Municipal Finance Officers Association. Portland, Oregon. November 1990.

"Transforming from a Natural Resource Based Economy." Visualizing the Future: Idaho's Second Century Symposium. Idaho Centennial Commission. Boise, Idaho. November 1990.

"The Nineties - A Decade for Change." Twenty-Seventh Annual PNWIS-AWMA Conference. Portland, Oregon. November 1990.

"The Northwest Economy." Commercial Investment Realtors of Lane County. November 1990.

"Clear Cut Crisis." Panelist. Oregon Public Broadcasting Symposium. Portland, Oregon. August 1990.

"Oregon's Changing Economy and Marketplace." Panelist, Oregon Downtown Development Association Annual Conference. Eugene, Oregon. July 1990.

"Generators Beware: Environmental Firms Are Clustering for a Reason." Keynote speaker, Environmental Hazards Annual Conference. Seattle, Washington. May 1990.

"New Perspectives on Forest Management." U.S. Forest Service Symposium. Forestry Sciences Laboratory. Corvallis, Oregon. April 1990.

"The Economy and the College Student." Keynote speaker, National Academic Advising Association Region 8 Conference. Portland, Oregon. March 1990.

"Fast Forward to 2000: The Once and Future Northwest." Keynote speaker, City Club. Portland, Oregon. January 1990.

"Futures Focus Group: Governor's Commission on Higher Education, Portland Metropolitan Area." Portland, Oregon. December 1989.

"The Anatomy of a Timber Supply Crisis." Moderator, The Timber Supply Crisis: Potential Impacts and Economic Development Policy Options, a Colloquium. Northwest Policy Center. Seattle, Washington. November 1989.

"Economic Impacts of Protecting the Environment." Pacific Northwest Pollution Control Association Annual Conference. Eugene, Oregon. October 1989.

"Global Warming: The Stakes." "Sustainable Energy: A Path for Environmental Stewardship." Solar Energy Association of Oregon Annual Conference. Eugene, Oregon. October 1989.

"Whose Water? Past; Present; Future." University of Washington, Institute for Environmental Studies. Seattle, Washington. September 1989.

"The Once and Future Northwest." West Coast Public Radio Conference. Seattle, Washington. September 1989.

"Strategic Economic Development and the Environment." Land Conservation and Development Commission Workshop. Silver Falls, Oregon. September 1989.

"Oregon's Plan for Excellence." Council for Economic Development in Oregon, Annual Conference. September 1989.

"Transportation to the 21st Century." American Economic Development Council, 1989 Western Region Conference. Eugene, Oregon. September 1989.

"Planning for Economic Growth." Oregon's Next Decade of Land Use Planning. 1989 Oregon Planning Institute. Eugene, Oregon. September 1989.

"Resource Regulation in Oregon's Future." Statewide Retreat for Natural Resource Agency Heads. Silver Falls, Oregon. August 1989.

"Future Social, Economic, and Cultural Trends for Oregon: Implications for Public School Education." Oregon Leadership Academy's Spring Leadership Conference. Confederation of Oregon School Administrators. Eugene, Oregon. April 1989.

"Governor Goldschmidt's Strategic Economic Plan for Oregon." Oregon Chapter, American Planning Association Spring Conference. Beaverton, Oregon. March 1989.

"The Linkage between Public-Works Infrastructure Financing and Economic Development." Special Districts Association of Oregon, Annual Conference. Ashland, Oregon. February 1989.

"Economic Development Impacts of Old Growth Preservation." Oregon's Forests in 2010, a conference on the future of Oregon's forests, hosted by U.S. Representative Peter DeFazio and Oregon State Representative David Dix. Eugene, Oregon. February 1989.

"Regional Economic Development Issues." 1988 Issues Conference of the Northwest Business Coalition. Portland, Oregon. November 1988.

"The Economic Future of the Northwest." 1988 Government Finance Officers' Association, Annual Conference. Seattle, Washington. November 1988.

"The Changing of State Economic Development Policy." Tenth Annual Association for Public Policy Analysis and Management Research Conference. Seattle, Washington. October 1988.

"The Oregon Economy." Oregon Business Week and Western Oregon State College. Monmouth, Oregon. August 1988.

"Evaluating the Role of Fish in the Development of the Pacific Northwest's Economy--or Is It the Other Way Around?" Salmon and Steelhead Roundtable, sponsored by the Northwest Power Planning Council. June 1988.

"Developing a Strategic Plan for Regional Economic Growth." Northwest Policy Center Journalists Forum. May 1988.

"Regional Economic Strategies in the Pacific Northwest." An hour-long interview for KOEW Radio. Seattle, Washington. March 1988.

Invited panelist on urban and rural economic growth. Agriculture Conference Days, Oregon State University. Corvallis, Oregon. February 1988.

Invited testimony before the Committee on Trade and Economic Development. Oregon State Legislature. January 1988.

Invited participant, Regional Strategies Conference. University of Washington, Institute for Public Policy and Management. Seattle, Washington. January 1988.

"A New Approach to Old Economic Development Strategies." Washington Energy Task Force. Olympia, Washington. December 1987.

"The Economic Past and Future of Oregon." Sunset Corridor Association's Fall 1987 Conference. Beaverton, Oregon. October 1987.

"Regional Development Strategies: State and Local Roles." Thirteenth Annual Oregon Planning Institute. Eugene, Oregon. October 1987.

"Accelerating Our Economic Development." State of Washington, Economic Conference for Senior Officials: The Economics of the State and Its Regions—What We Know About the Present and What We Can Do for the Future. Washington Institute for Public Policy. Olympia, Washington. June 1987.

"Perspectives on Economic Development Strategies." Northwest Allied Newspapers, Annual Meeting. May 1987.

"New Economic Strategies for Regional Development." Twenty-First Annual Pacific Northwest Regional Economic Conference. Seattle, Washington. May 1987.

Invited testimony before the Committee on Trade and Economic Development. Oregon State Legislature. January 1987.

"The Economics of Economic Development." Seventh Biennial Legislative Conference on the Economy. Salem, Oregon. January 1987.

"Changing Oregon's Economy from an Old Growth Economy." Oregon Natural Resources Council. September 1986.

"Outlook for the National, State, and Local Logging Industry for 1986." Associated Oregon Loggers, Inc. 16th Annual Convention. Springfield, Oregon. January 1986.

"Idaho Economic Development—Prescriptions for Progress." Governor's 1985 Economic Symposium. Boise, Idaho. December 1985.

"Getting the Goods and Paying for Them." PNPCA Sewer Design/Construction Program. Portland, Oregon. October 1985.

"Small Businesses in the Pacific Northwest: The Real Wealth of Nations." Meeting of Portland *Oregonian* Business Forecast. Portland, Oregon. July 1985.

"Amendments to Oregon's Land Use Planning Goal 9: The Economy." Invited testimony before City Club of Portland, Standing Committee on Land Use. Portland, Oregon. July 1985.

"Making Sure Oregon's Journey on the River Styx Is Roundtrip." Democratic Business Forum. Portland, Oregon. July 1985.

"A Look at the Northwest Region." Round Table for Unions in the Wood Products Industry. Portland, Oregon. May 1985.

"A Descriptive, Explanatory, and Prescriptive Analysis of the Economics of Washington and Oregon." Nineteenth Annual Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1985.

"Economic Development and the Future of Portland." Invited testimony before Portland Commissioner Mike Lindberg and staff. Portland, Oregon. January 1985.

"Can Our Taxes Survive Our Economic Development?" Council of Governments, Annual Dinner Meeting. Salem, Oregon. January 1985.

"Small Business Formation." Meeting of Portland *Oregonian* Business Forecast. Portland, Oregon. January 1985.

"Can Our Taxes Survive Our Economic Development?" League of Oregon Cities. Eugene, Oregon. November 1984. Also, State Senate Democratic Caucus. Silver Falls State Park, Oregon. January 1985.

"Economic Development and the Future of Portland." Presentation and discussion. The City of Portland, Office of Public Works. November 1984.

"National and Northwest Economic Outlook" and "Business Formation in the Northwest." Inaugural Meeting of Portland *Oregonian* Business Forecast. Portland, Oregon. July 1984.

"State Economic-Diversification Strategies." Oregon Democratic Campaign Workshop. Portland, Oregon. June 1984.

"The Economy and the College Student: More Recent Observations." Pacific Northwest Regional Economic Conference. Olympia, Washington. May 1984.

"The Implications of Increasing Average Costs of Electrical Generation in the Pacific Northwest." Northwest Conservation Act Coalition Conference. Spokane, Washington. April 1984.

"The State of the Economy." Building Trades Business Agents Institute. Eugene, Oregon. March 1984.

"The Economics of Fish and Power." Pacific Northwest Electric Power and Conservation Planning Council. Portland, Oregon. February 1983.

"The Economics of Fish and Power." Hydro-Power Symposium, American Fish Society, Montana Chapter. Kalispell, Montana. February 1983.

"The Economy and the College Student." American Association of Higher Education. Seattle, Washington. November 1982.

"Directions in Oregon Land-Use Planning." Oregon Chapter of the American Society of Landscape Architects. Eugene, Oregon. November 1982.

"Housing and the Economy." State Housing Division and Oregon State Home Builders Association. Salem, Oregon. October 1982.

"Achieving Energy Conservation by Rate Design in the Residential Sector." Regional Power Plan Workshop, Pacific Northwest Electric Power and Conservation Planning Council. Seattle, Washington. October 1982.

"The Economics of the Northwest Region." Central Oregon Project Energy Conference. Sun River, Oregon. September 1982.

"Land Use, Public Facilities, and Economic Development." Portland City Club. Portland, Oregon. July 1982.

"Financing the Infrastructure." Oregon Legislative Joint Interim Task Force on Managing and Financing Growth. Eugene, Oregon. July 1982.

"Economic Impacts of Energy Investments." International City Management Association, Northwest Regional Conference, League of Oregon Cities. Salishan Lodge, Oregon. March 1982.

"Developing Industrial Lands." Testimony before the Industrial Lands Subcommittee of the Joint Legislative Committee on Land-Use. Portland, Oregon. March 1982.

"Current Economic Issues." Labor Education and Research Center, Building Trades Representative Institute. University of Oregon. Eugene, Oregon. March 1982.

"Oregon Economic Conditions and Forecasts." Oregon Association of School Boards. Inn at Otter Crest, Newport, Oregon. January 1982.

"The State and National Economies: The Foreseeable Impact on Local Government." State Council of Firefighters, Labor Education and Research Center. University of Oregon. December 1981.

"Environmental Impacts and the Evaluation of Resource Acquisitions." Third Annual, Alternative and Renewable Energy Resource Conference, and Bonneville Power Administration. University of Montana. September 1981.

"State and Local Economic Development: Target Variables—Tools and Strategies." Fifteenth Annual Pacific Northwest Regional Economic Conference. Boise, Idaho. April 1981.

"Economic Growth, Public and Private Sector Financing Problems, and Future Development." Oregon League of Women Voters. Eugene, Oregon. April 1981.

"The Economic Outlook." Society of Industrial Realtors, 1st Annual Real Estate Conference. Portland, Oregon. April 1981.

"Oregon's Economic Forecast." Oregon Senate Review Committee. Salem, Oregon. March 1981.

"Current Economic Conditions." Labor Education and Research Center's Session for Business Agents, Building Trades Union. University of Oregon. Eugene, Oregon. March 1981.

"Economics and Public Policy Issues in Mass Transit." Transit Union Representatives' Training Institute. Asilomar, California. January 1981.

"Mass Transit: Economics and Public Policy." Mass Transit Union Representative Training Institute. U.S. Department of Transportation and AFL-CIO, George Meany Center for Labor Studies. University of Oregon (Eugene, Oregon), July 1980. University of California (Berkeley, California). November 1980 and January 1981.

"National/Regional/Oregon Economics." League of Oregon Cities. Portland, Oregon. December 1980.

"Economics and Public-Policy Issues in the Mass Transit Industry." Transit Union Representatives' Training Institute. Asilomar, California. November 1980.

"State and Local Economic Development in Oregon" and "Vehicles for Local Economic Development." Annual Conference of the League of Oregon Cities. Salem, Oregon. November 1980.

"The Pacific Northwest as Viewed by a Practitioner of the Dismal Science." Fourth Annual Northwest Regional Financial Planning Conference. May 1980.

- "Approaches to Estimating the Effects of Public Policies on Urban Land Prices." Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1980.
- "The Pacific Northwest's Economic Future." Annual Northwest Regional Financial Planning Conference, International Association of Financial Planners. Portland, Oregon. May 1980.
- "New England and the Pacific Northwest: Regional Economic Comparisons." Fourteenth Annual Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1980.
- "Approaches to Estimating the Economic Effects of Public Policies on Urban Land Prices." Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1980.
- "Measuring the Effects of Public Policy on Land Prices." U.S. Department of Housing and Urban Development and Urban Land Institute. Washington, D.C. February 1980.
- "The Economics of the Extended Family." Oregon Community Education Association. Eugene, Oregon. February 1980.
- "Urban Growth Boundaries." Oregon Land-Use Conference for Realtors and Homebuilders, sponsored by Dialogue Northwest. Portland, Oregon. May 1979.
- "Neighborhood Revitalization." Neighborhood Revitalization Workshop, Oregon Savings and Loan League. Portland, Oregon. May 1979.
- "The Economics of Land Use." Legislative Conference on the Economy, Oregon Council on Economic Education. Willamette University. Salem, Oregon. January 1979.
- "The Effects of Legislative Action on Land Value." Seminar on Residential Property Values in Transition. Central Oregon Chapter of the American Society of Appraisers. September 1978.
- "Shopping Patterns and Municipal Regulations in Nairobi." Western Regional Science Association Meetings. Long Beach, California. February 1974.
- "Urbanization, Land Use and Long-Range Planning in the State of Oregon." Eighth Annual Pacific Northwest Regional Economic Conference. Seattle, Washington. April 1974.
- "Land-Use Planning, Economic Development and the Distribution of Population in Oregon." Seventh Annual Pacific Northwest Regional Economic Conference. Portland, Oregon. April 1973.
- "Critical Appraisal of the American Institute of Architects National Policy on Urban Growth." AIA/Press Seminar. Portland, Oregon. September 1972.
- "The Economics of Poverty in Relation to Choice." Annual Meeting of the American Psychology Association. San Francisco. September 1968.
- "Municipal Investment: An Econometric Analysis." Harvard Seminar on Regional and Urban Economics, Resources for the Future. Cambridge, Massachusetts. November 1967.

TELEVISION AND RADIO COMMENTARIES

- National Public Radio*, Talk of the Nation. Host: Neal Conan. "Northwestern U.S. Economy." November 2002

National Public Radio Series (taped for KLCC radio, Eugene, Oregon): "Current Economic Issues"

"The Defeat of Measure 28 and the Future of Oregon's Economy." January 2003.

"Bush vs. Clinton: A Clear Economic Choice." September 1992.

"Why Oregon's Water Policies Are All Wet." August 1992.

"Thanks for the Memories, Larry Campbell." July 1992.

"Tackling Intercollegiate Athletics." November 1991.

"Discussing the Conversation." September 1991.

"Coming Soon: The Legislative Session." July 1991.

"The Graduate (Circa 1991)." June 1991.

"The Prognosis for Health Care." May 1991.

"Family Crisis and Their Costs." April 1991.

"All in the Families." March 1991.

"Mixing Oil and Water." March 1991.

"An Oregon Forecast That's Partly Sunny." February 1991.

"Teaching Our Schools a Lesson." January 1991.

"Taking Five." November 1990.

"Clear Cut Crisis." Panelist, Oregon Public Broadcasting Symposium. Portland, Oregon. August 1990.

"Oregon's Changing Economy and Marketplace." Panelist, Oregon Downtown Development Association, Annual Conference. Eugene, Oregon. 1990.

"The Once and Future Northwest." West Coast Public Radio Conference. Seattle, Washington. September 1989.

"Regional Economic Strategies in the Pacific Northwest." An hour-long interview for KOEW Radio. Seattle, Washington. March 1988.

"The University of Oregon's Riverfront Research Park." Radio interview, Willamette Science and Technology Center's series, *Getting Technical*. KWAX-FM. Eugene, Oregon. September 1985.

COMMUNITY SERVICE, SPEECHES, AND WORKSHOPS

"The Future of Lane County: Jobs and Economic Development." Community Forum. Eugene, Oregon. October 2008.

"Putting your Economic Demand on Solid Footing: How expert witnesses can help in assessing civil penalties and restitution in environmental cases." CDAA's Environmental Crimes 101. Speaker at California District Attorneys Association/California Hazardous Materials Investigators Association 2008 Conference. Shell Beach, California. March 2008.

“Describing and Evaluating the Economy: Education Program for Oregon Judges.” Speaker at Judicial Regional CLE conference. Eugene, Oregon. February 23, 2007.

“13th Economic Forecast 2007,” Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2007.

“The Economic Anomalies of American and Eugene/Springfield’s Healthcare Markets.” Town meeting, sponsored by the Osher Lifelong Learning Institute. Eugene, Oregon. March 2006.

“Economic Impacts of Ballot Measure 37.” Panel presentation, sponsored by Eugene Area Chamber of Commerce. Eugene, Oregon. December 2004.

Lane County Forecast 2004, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2004.

Lane County Forecast 2003, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2003.

Lane County Forecast 2002, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2002.

“Economic Matters & Economics Matters: Oregon’s Road Into and Out of the Current Economic Recession.” Keynote speaker, Mid-Willamette Valley Council of Governments Annual Meeting. Salem, Oregon. January 2002.

Lane County Forecast 2001, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2001.

"Economic Case Against Logging." Panel participant, University of Oregon, Environmental Law Conference. Eugene, Oregon. March 2000.

Lane County Forecast 2000, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2000.

"Space, Time and Eugene's Economy." Panel participant, City of Eugene, 1999-2000 City Goals Process, Environmental Scan. Eugene, Oregon. February 1999.

Lane County Forecast '99, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. February 1999.

"Making Sense of Trends and Cycles." Principal Speaker, Lane Council of Governments Appreciation Dinner. Eugene, Oregon. January 1999.

"Environmental Issues in the Pacific Northwest." Speaker, University of Oregon Department of Economics, Lecture Series. Eugene, Oregon. July 1998.

"Economic Forecast 1998." Oregon Association of Realtors: Spring Real Estate Conference. Eugene, Oregon. March 1998.

Lane County Forecast 1998, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 1998

Oregon Speech-Language & Hearing Association’s Fall Conference. Bend, Oregon. October 1997.

“Thriving in a Hostile Environment.” Oregon Department of Revenue. Salem, Oregon. October 1996.

"Voting Your Pocketbook." City Club of Portland. Portland, Oregon. November 1996. Aired on Oregon Public Broadcasting and area cable television.

Lewis & Clark Law School, Seminar on Growth Management. November 1992.

"Measures 5 and 7: How Do They Impact the Oregon Economy?" Clergy and Laity Concerned (CALC) Fall Forum. October 1992.

"The Changing Economy and Housing." Eugene Housing Committee/City Club. Eugene, Oregon. June 1991.

"Changes in the Pacific Northwest Economy." Eugene Estate Planning Council. Eugene, Oregon. May 1991.

"Eugene's Economic Future: If Not Timber, What?" City Club of Eugene. November 1990.

"Region on Trial." Northwest Public Affairs Network. Seattle, Washington. September 1990.

"Ancient Forest National Symposium and Retreat." The Wilderness Society. Breitenbush Park, Oregon. August 1990.

"Ancient Forests." Oregon Public Broadcasting. Portland, Oregon. August 1990.

"Oregon's Changing Economy and Marketplace." Oregon Downtown Development Association. Eugene, Oregon. July 1990.

"The Spotted Owl and the Northwest Economy." Local radio and television stations. Eugene, Oregon. Spring 1990.

"Economy and the College Student." Golden Key Club, University of Oregon. Eugene, Oregon. January 1990.

"Metropolitan Economic Development Strategies: A Panel Discussion." Eugene Area, Chamber of Commerce. Eugene, Oregon. December 1989.

"Lane County Regional Economic Trends." Conference on the Economy of Lane County, sponsored by Lane Council of Governments and Eugene-Springfield Metro Partnership. Springfield, Oregon. November 1989.

"Timber Issues Call-In." Invited participant, KSOR public radio for Southern Oregon and Northern California. Ashland, Oregon. July 1989.

"Oregon's Economy in 1989 and Beyond." Emerald Valley Development Professionals. Eugene, Oregon. January 1989.

"Education and the Economy." Churchill High School, Career Awareness Program. Eugene, Oregon. January 1989.

"The Economic Future of Lane County." Eugene/Springfield Leadership Conference. Eugene, Oregon. September 1988.

"Career Opportunities in Economics." Student Economic Association. University of Oregon. May 1988.

"Developing Oregon's Economy Strategically." Junction City-Harrisburg Area, Chamber of Commerce. Junction City, Oregon. March 1988.

"Strategies for Oregon's Economic Development." Eugene Active 20-30 Club. Eugene, Oregon. March 1988.

"Presidential Campaign '88: The Candidates and the Economic Issues." Student Economics Association, Presidential Symposium. University of Oregon. March 1988.

"The Economy and the College Student." New Student Host Program's Academic Symposium. Eugene, Oregon. September 1987.

"The Economic Future of Lane County." Eugene/Springfield Leadership Conference. Eugene, Oregon. September 1987.

"The Environment and Regional Economic Development." Earth Week 1987. University of Oregon. April 1987.

"How to Make Oregon's Journey to the River Styx Roundtrip." Eugene/Springfield Leadership Conference. Eugene, Oregon. April 1987.

Reviewed nominations and selected award winners for the Oregon Chapter of the American Planning Association, Awards Jury. Albany, Oregon. March 1987.

"Lane County Business and Economic Forecast for 1987." Lane Community College. December 1986.

"Lane County Business and Economic Forecast for 1987 and Beyond." Eugene-Springfield Leadership Conference. September 1986.

"Old Growth, New Growth: Timber Issues in the Pacific Northwest." Earth Day. University of Washington. April 1986.

"The Economy and the College Student." Oregon State Correctional Institution and Oregon State Penitentiary. February 1986.

"Lane County Business and Economic Forecast for 1986." Eugene Kiwanis Club. February 1986.

"Lane County Business and Economic Forecast for 1986." Eugene Hospital and Clinic. February 1986.

"Economic Future of Lane County." Metro Scene sponsored by the Eugene Area Chamber of Commerce. Eugene, Oregon. January 1986.

"An Overview of the National, State, and City Outlook." Lane County Business and Economic Forecast for 1986. Eugene, Oregon. December 1985.

"The Economics of Housing." Lecture and discussion for a course on "Housing in Society." University of Oregon. November 1985.

"How to Make Oregon's Journey on the River Styx Roundtrip." South Lane Public Issues Forum. Cottage Grove, Oregon. November 1985.

"The Benefits of Small Business." University of Oregon, Speaker Service Reception. University of Oregon. September 1985.

"Northwest Economic Future: Where We Are and Where We're Going." Eugene Downtown Rotary Club. Eugene, Oregon. September 1985.

"The University of Oregon's Riverfront Research Park." Radio interview. Willamette Science and Technology Center's series, *Getting Technical*. KWAX-FM. Eugene, Oregon. September 1985.

"Making Sure Oregon's Journey on the River Styx Is Roundtrip." National Association of Accountants. Eugene, Oregon. September 1985.

"How to Make Washington's Journey on the River Styx Roundtrip." Olympia Economist Club. Olympia, Washington. March 1985.

"Northwest Economic Future: Where We Are and Where We're Going." City Club of Portland, Standing Committee on Land Use. Portland, Oregon. March 1985.

"Oregon's Economic Development: Promises and Prospects." University of Oregon, Forum. Albany, Oregon. March 1985.

"Is There Economic Life After High School?" Student Body, Sheldon High School. Eugene, Oregon. March 1985.

"The Budget Deficit and the Trade Deficit: Symptoms of the Fiscal Revolution." First United Methodist Church. Eugene, Oregon. March 1985.

"Oregon's Economic Conditions, Prospects, and Policies." Lane Democratic Forum. Eugene, Oregon. February 1985.

"Myth and Reality: Oregon's Economy and Taxes." Southern Oregon State College. February 1985.

"Can Lane County Survive?" Eugene-Springfield Real Estate Research Committee, Semi-Annual Meeting. November 1984.

"The Level and Composition of Economic Growth in Greater Portland." First quarterly meeting of *The Business Journal* Board of Economists. Portland, Oregon. July 1984.

"Strategic Economic Planning for Higher Education." Mission Planning Commission, Lewis and Clark College. January 1984.

"Is There Economic Life After High School?" Crescent Valley High School. Corvallis, Oregon. November 1983.

"The U.S. Economy." Sundstrand Data Control. Sunriver, Oregon. September 1983.

"Economics and the Editorial Page." Wendell Webb Seminar, School of Journalism. University of Oregon. June 1983.

"Is There Economic Life After High School?" Sheldon High School. Eugene, Oregon. June 1983.

"Economic Recovery: How Soon? How Good?" Parents' Weekend. University of Oregon. May 1983.

"The Economy and the College Student." Economics Department, Lewis and Clark College. May 1983.

"The Economy and College Student." College Faculty and Staff and Guests of Business, Lewis and Clark State College. Lewiston, Idaho. February 1983.

"A Business and Economic Forecast for 1983: Eugene's Economy." Business Assistance Team, Eugene Chamber of Commerce, and Lane Community College. Eugene, Oregon. December 1982.

"Local Economic-Development: Causes and Strategies." Linn-Benton Economic Development Forum. Corvallis, Oregon. November 1982.

"Economic Development in Lake Oswego." Lake Oswego Chamber of Commerce Workshop. Inn at Spanish Head, Lincoln City, Oregon. October 1982.

"Evaluation of the Industrial Sector Forecasting Models of the Pacific Northwest Utilities." Conference Commission and the Northwest Energy Policy Project, Bonneville Power Administration Workshop. Portland, Oregon. October 1982.

"The Oregon Economy." University of Oregon Day at the Eugene Hilton. Eugene, Oregon. October 1982.

"Capitalist Theory Today." Nineteenth Annual Grace Graham Vacation College. August 1982.

"Economic Development Strategies." City of Coos Bay Workshop. Coos Bay, Oregon. August 1982.

"Economic Development Strategies." City of Oregon City Workshop. Oregon City, Oregon. August 1982.

"Reaganomics: A Status Report." Labor Education and Research Center, UFCW Training Program. University of Oregon. July 1982.

"Plant Modernization and Its Impact on Structure of Wood Products Industry." Bureau of Governmental Research Service, University of Oregon. July 1982.

"The Current Recession and the Prospects for Surviving." Office of University Relations Workshop. Bend, Oregon. June 1982.

"Economic Development Strategies." Lake Oswego Chamber of Commerce, Forum Meeting. Lake Oswego, Oregon. May 1982.

"The Economic Outlook for the 1980s." Spring Parents' Weekend, Student University Relations Council, University of Oregon. Eugene, Oregon. May 1982.

"Economic Recovery in Lane County." Lane County Small Business Association, Lane Community College Downtown Center. Eugene, Oregon. April 1982.

"Local Economic-Development Strategies." Employment and Training Department, Lane County. Eugene, Oregon. March 1982.

"Economic Outlook for the Forest-Products Industry." Koppers Chemicals and Coatings. Eugene, Oregon. March 1982.

"Future Options for Economic Development." KOZY-TV. Eugene, Oregon. January 1982.

"Basic Concepts of Economics: Schools of Thought, from Keynes to Reaganomics and Beyond," "Economic Growth," and "Policy Outcomes and Strategies for Labor." Labor Education and Research Center, Economics Seminar. Salem, Oregon. December 1981.

"Growth Industries: The Next 20 Years." Lane County Private Industry Council. Lane County Fairgrounds, Eugene, Oregon. November 1981.

"Reaganomics." Department of Economics. University of Montana. May 1981.

"Is There Life After High School." Junior Achievement's 1981 Oregon Management Conference. Inn at Otter Crest, Newport, Oregon. February 1981.

"The Economy of the Willamette Valley" and "Commercial and Industrial Locations: Some Hints About What Business Looks For." League of Oregon Cities. Portland, Oregon. November 1980.

"Inflation, Recession, and Economic Growth." Lecture and discussion, Vacation College, University of Oregon. Eugene, Oregon. August 1980.

"Economics of Today." Lecture and discussion, Economics Workshop sponsored by Rogue Community College. Grants Pass, Oregon. April 1980.

"Economic Conditions, Land-Use Patterns and Real Estate in Eugene-Springfield." Eugene Board of Realtors. Eugene, Oregon. March 1980.

"Economic Conditions, Land-Use Patterns, and Real Estate in Eugene-Springfield." Eugene Board of Realtors. Eugene, Oregon. March 1980.

"Oregon's Economy: Diagnosis and Prescription." Albany Area Chamber of Commerce. Albany, Oregon. May 1980.

"Northwest Economic Outlook." Oregon Society of Certified Public Accountants. Eugene and Portland, Oregon. November-December 1979.

"Oregon's Economy." Staff retreat, Eugene Hospital and Clinic. Eugene, Oregon. November 1979.

"Oregon's Economy." City Club of Portland. Portland, Oregon. September 1979.

"Economics: Various Viewpoints." Alumni Summer College. Linfield College. August 1979.

"Eugene's Economy and Growth Management." Lecture and discussion for a class on "Community Concerns." North Eugene High School. March 1979.

"Economic Costs of Growth Management Policies." Speech and discussion, Growth Management Workshop sponsored by Jackson and Josephine Counties and Oregon State University, Extension Service. February 1979.

"Urban Economics and Public Policy." Short Courses, Department of Urban and Regional Planning, University of Oregon. Eugene, Oregon. 1977, 1978, and 1979.

"Economic Forecasts for the Eugene-Springfield Area." Emerald Executive Association. Eugene, Oregon. October 1978.

"Economic Growth in the Eugene-Springfield Area." League of Women Voters of Central Lane County. Eugene, Oregon. May 1978.

"Hood River's Economy: Some Alternatives for Local Economic Planning." County Planning Commission, City Planning Commission, County Commissioners, City Council, Chamber of Commerce, and various citizens groups. Hood River, Oregon. March 1978.

"Oregon's Non-Forest Economy." Forests and Oregon's Economic Future Conference, sponsored by the Oregon Student Public Interest Research Group (OSPIRG). Eugene, Oregon. February 1978.

- "Community Development Corporations and Eugene's Economy." Community Forum Series. Eugene, Oregon. February 1978.
- "The Economics of the Community School." Workshop on the Extended Family, sponsored by the Oregon Community Education Association. Eugene, Oregon. February 1978.
- "The Economy of the Eugene-Springfield Metro Area." Joint session of the Retired Officers Association and the Navy League. Eugene, Oregon. January 1978.
- "Lane County's Economy and Vehicles for Economic Development." Economic Development Forum, sponsored by the City of Eugene, the City of Springfield, Lane County, and the Eugene-Springfield Chamber of Commerce. Springfield, Oregon. November 1977.
- "Vehicles for Economic Development: Workshops on Local Economic Planning." Conducted for the Eugene City Council. Eugene, Oregon. October-November 1977.
- "Urban Fiscal Crises." Lecture and discussion, Vacation College, University of Oregon. Eugene, Oregon. August 1977.
- "The Economics of Oregon's Future." Oregon Conference on Survival. Menucha in Corbett, Oregon. June 1977.
- "Economic Development and Portland." Paper and discussion. Invited by Mayor Neil Goldschmidt. Portland, Oregon. November 1975.
- "The Western Environmental Trade Association's (WETA's) Evaluation of OCC&DC's Coastal Zone Management Program." Oregon's Lane Conservation and Development Commission. Salem, Oregon. May 1975.
- "Economic Impacts of the Proposed Pacific Rim Center." Portland City Planning Commission and Portland City Council. August-November 1973.
- "Economics and Ecology: Key Issues in the Controversy." Public Discussion Series on Environment and Population. University of Oregon. February 1970.
- "Intra-Urban Industrial and Residential Location," "The Urban Ghetto Problems of Race and Poverty," "Urban Renewal and Federal Housing Policy," "Municipal Finance," and "The Urban Transportation Problem." Short Course in Business and Economics, Hill Foundation Seminar for Newsmen, University of Oregon. Eugene, Oregon. July 1969.
- "The Application of Benefit-Cost Analysis to Education." NDEA School Administration, In-Service Project. Eugene, Oregon. October 1968, March 1969.
- "Expenditures: Oregon in Perspective." Conference on State and Local Tax Policy for Oregon: Perspectives and Alternatives. Sponsored by the School of Business and Technology, Department of Economics and the Cooperative Extension Service of Oregon State University. Corvallis, Oregon. March 1969.
- "Urban Problems: Finance, Housing and Transportation." Oregon House Committee on Urban Affairs. Salem, Oregon. February 1969.
- "Economics and Real Property." Oregon State Tax Commission, Appraisal Short Course, Oregon State University. Corvallis, Oregon. August 1968.
- "The Function and Incidence of Taxation." Hill Foundation Seminars for Newsmen, University of Oregon. Eugene, Oregon. July 1968.

Ph.D. Economics, Harvard University
B.A. Economics and History, University of Oregon

Bryce Ward joined ECONorthwest in 2005. His areas of expertise include econometric analysis and applied microeconomics -- including urban and regional economics, labor economics, public finance, and environmental and natural resource economics. Dr. Ward has applied his expertise to a variety of projects involving litigation support and program evaluation. His recent work includes evaluations of the efficacy of several education interventions and of the effects of land-use regulations on property markets.

Dr. Ward received his Ph.D. in economics from Harvard University and his B.A. in economics and history from the University of Oregon, and he has taught courses in labor economics, microeconomic theory, public finance, environmental and natural resource economics, and social economics at Harvard College, Lewis and Clark College, and the University of Oregon.

Litigation Support Projects

Anti-Trust

- Assessed the economic aspects of alleged anticompetitive behavior in the market for outpatient diagnostic imaging services in the Reno area
- Analyzed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots
- Analyzed the market for MRI services in the Boise area and assessed alleged anticompetitive behavior in this market

Environment

- Reviewed an economic analysis prepared by the USDA regarding proposals for the application of pesticides to eradicate the Light Brown Apple Moth
- Analyzed potential market responses to a natural disaster
- Calculated profit disgorgement based on emission violations
- Evaluated a contingent valuation study of a proposed wind farm
- Reviewed and evaluated the economic components of a feasibility study and preferred clean-up remedy for a contaminated site
- Evaluated the U.S. Environmental Protection Agency's draft report on groundwater and soil remediation scenarios for a creosote-contaminated Superfund site
- Assisted in an analysis of the fuel ethanol market to determine if refiners could have used ethanol to meet federal reformulated gasoline mandates instead of MTBE during the 1990s

Labor

- Conducted analysis as a precursor to a public-interest arbitration involving transit districts
- Described the impact of economic turmoil and potential deflation on public interest arbitration
- Calculated lost wages resulting from wrongful termination of public school custodians
- Analyzed losses to a firm due to former employees' breaches of restrictive employment-contract covenants regarding future employment with a competitor

Personal Injury/Wrongful Death

- Calculated economic damages in a wrongful death lawsuit
- Calculated lost wages and presented expert testimony in a personal injury case

Other

- Developed a statistical model and calculated damages caused by the difference between Truth In Lending disclosures versus final loan documents
- Calculated damages to a father denied access to his child for 17 years
- Calculated reimbursements to families who adopted foster children as part of a class action settlement
- Calculated damages suffered by an auto dealership and service department stemming from the violation of non-solicitation and non-compete clauses in an asset purchase agreement
- Evaluated the potential economic effects of the U.S. Department of Agriculture and California Department of Food and Agriculture's proposed eradication of the Light Brown Apple Moth
- Reviewed and conducted analyses in order to determine specialty forest product harvesters are compelled to sell to a shed the brush they picked under the permit that shed issued them
- Analyzed the impacts of Measure 37 (property rights limitation) on the State of Oregon
- Addressed the economic issues of telecommunications firms' challenge, under the Telecommunications Act of 1996, to the City of Portland's franchise-fee agreements for use of the municipal right-of-way

Other Analyses

Education

- Designed and implemented a randomized evaluation of the Safe and Civil Schools program with the Fresno Unified School District
- Developed a method for calculating and reporting student achievement growth for a school accountability program in Seattle, Washington
- Evaluated the effectiveness of the New School, a public-private partnership school in Seattle, Washington

- Evaluated the effects of ASPIRE (a program to increased college enrollment among Oregon high school students)
- Reviewed and evaluated current research on using student test scores to assess school performance for Seattle Public Schools
- Developed a district report card system for several Oregon school districts
Described the Hispanic-White and Black-White achievement gaps in Oregon schools
- Reviewed and evaluated current research on the effectiveness of the Safe and Civil Schools program, and worked with clients to develop and implement additional program evaluation.

Public Policy

- Described the likely impact of a proposed tax increase on taxable income and economic growth
- Evaluated the effect of enterprise zone tax incentives on economic development
- Developed a model and analyzed data to estimate gross revenues for video, voice, and data services at the city level for the League of Oregon Cities
- Reviewed and evaluated current research on the impact of increased hospital supply on local health care markets
- Provided data collection services to determine garbage and yard debris can weights and set-out rates for Eugene residents.

Real Estate

- Analyzed the effect of Seattle's Natural Drainage (low impact development) Projects on neighboring property values
- Analysis of the Effect of Regulations on Housing Prices in Greater Boston
Ward assisted Harvard Professor Edward L. Glaeser in preparing a report for Harvard's Rappaport Institute for Greater Boston and the Pioneer Public Policy Institute that estimated the effect of local regulations on housing supply and housing prices.
- Analysis of Neighborhood Price Dynamics
Ward assisted Harvard Professor Edward L. Glaeser on a paper detailing the sources of housing-price cycles at the neighborhood level.

Labor Markets

- Calculated potential economic costs associated with proposed change in Oregon's meal and rest break rule
- Analysis of the Long-Term Labor Market and Family Outcomes of Harvard Undergraduates
Ward assisted Professors Claudia Goldin and Lawrence Katz of the Harvard Department of Economics in creating a large and valuable data set on Harvard College students that will help track labor market and family outcomes in the years following their entrance/graduation. This information will allow the examination of possible gender differences in career and family outcomes.

Publications

- "The Causes and Consequences of Land Use Regulation: Evidence from Greater Boston" *Journal of Urban Economics* 65(3): 265-278 Glaeser, E., and B Ward.
- "Myths and Realities of American Political Geography." *Journal of Economic Perspectives*. Glaeser, E., and B. Ward. Spring 2006.
- Regulation and the Rise of Housing Prices in Greater Boston. Glaeser, E., J. Schuetz, and B. Ward. Cambridge, MA: Rappaport Institute for Greater Boston, Harvard University, and Pioneer Institute for Public Policy Research. 2006.
- "Distance and Social Capital: Can Isolation Be Good?," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006
- "Does Reunion Attendance Affect Alumni Contributions?: Evidence from the Harvard College Classes of 1990-1999," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006,
- "Economic Bridges Falling Down." *Eugene Weekly*. Ward, B. and E. Whitelaw. October 8, 2008.
- "The Economy: Now What? The Economists: Ward and Whitelaw" *Oregonian*, Ward B. and E. Whitelaw. September 20, 2008.
- "Dream On." *Oregon Quarterly*. Ward, B. and E. Whitelaw. Winter 2007.
- "Still the Land of Opportunity?" *Oregonian*. Tapogna, T., B. Ward, and E. Whitelaw. March 2006.
- "The Price Is (Not) Right." *Commonwealth: Growth and Development Extra*. Glaeser, E., J. Schuetz, and B. Ward. January 2006.

Recent Speeches and Presentations

- "Does Low-Impact Development Affect Property Values?: Evidence from Seattle's Natural Drainage System Projects." Water Environment Foundation Sustainability 2008 Conference., June 2008.
- "Compensation for ROW Access Under the Telecommunications Act of 1996: Fiscal Issues Related to Communications Services." NATOA 27th Annual Conference. Sponsored by the National Association of Telecommunications Officers and Advisors. Portland, Oregon. October 2007.
- "Outside the Light: The real factors driving Eugene/Springfield's Economy." Eugene-Springfield Leadership Program. Sponsored by the Eugene Area Chamber of Commerce. Eugene, Oregon. October 2006.
- "Deregulating the Housing Market." Preserving the American Dream Conference. Sponsored by the American Dream Coalition. Atlanta, Georgia. September 2006.

Teaching

- Visiting Assistant Professor, Lewis and Clark College; Courses: Intermediate Microeconomic Theory, Econometrics, Public Economics, Environmental and Natural Resource Economics, Spring 2008 & Fall 2009.
- Visiting Adjunct Instructor, University of Oregon; Courses: Labor Economics, Spring 2009.

Tutorial Leader, Harvard College; Courses: Everybody's Doin' It: Social Interactions and Economics, 2002-2006, Senior Thesis Tutorial: Labor, 2004-05.

Teaching Fellow, Harvard University; Courses: Intermediate Microeconomic Theory, Intermediate Macroeconomic Theory, Microeconomics: A Policy Tool for Educators, 2001-2003.

Teaching Assistant, University of Oregon; Courses: Principals of Microeconomics, Urban Economics, Economy of the Pacific Northwest, 1998-1999.